DOCUMENT RESUME

ED 252 519 SP 025 711

AUTHOR Klinzing, Hans Gerhard; And Others
TITLE the Effects of Nonverbal Behavior Training on Teacher Clarity, Interest, Assertiveness, and Persuasiveness during Microteaching.
PUB DATE Nov 84
NOTE 102p.; Paper presented at the Annual Meeting of the American Educational Research Association (68th, New Orleans, LA, April 23-27, 1984).
PUB TYPE Speeches/Conference Papers (150) -- Reports - Research/Technical (143)

EDRS PRICE MF01/PC05 Plus Postage.
DESCRIPTORS *Assertiveness; *Body Language; Foreign Countries; Higher Education; Individual Characteristics; *Microteaching; *Nonverbal Communication; Preservice Teacher Education; Secondary School Teachers; Student Attitudes; *Teacher Behavior; Teacher Effectiveness; *Training Methods
IDENTIFIERS West Germany

ABSTRACT

Based on evaluation of studies on nonverbal aspects of communication in instructional settings, a teacher training program was developed for nonverbal perceptiveness and expressiveness. An experimental study was conducted to test the effect of the program on secondary school preservice teachers (N=34). Focus was upon vocal delivery, eye contact, facial expressions, gesturing, and body movement, and the effect of these behaviors on clarity, interest, verbal speech quality, assertiveness, and persuasiveness during a microteaching lesson. Results indicated that expressive nonverbal behavior is trainable and that an increase in the level of expressiveness caused an increase in the majority of the variables (clarity, interest, assertiveness, and persuasiveness). Charts outlining the activities, specific objectives and goals, and the time schedule of the training program are appended. (Author/JD)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
HANS Gerhard Klinzing
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
[x] This document has been reproduced as received from the person or organization originating it.
[ ] Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

ED252519

Hans Gerhard Klinzing

Klaus Kunkel

Hans Schiefer

Siegfried Steiger

The Effects of Nonverbal Behavior Training on Teacher Clarity, Interest, Assertiveness, and Persuasiveness during Microteaching

Paper presented at the Annual Meeting of the American Educational Research Association, New Orleans, 1984.

UNIVERSITAET TUEBINGEN
Institut fuer Erziehungswissenschaft II
- Zentrum fuer neue Lernverfahren -
Muenzgasse 11
D-7400 Tuebingen
West Germany

SP 025 7

Hans Gerhard Klinzing
Klaus Kunkel
Hans Schiefer
Siegfried Steiger

The Effects of Nonverbal Behavior Training on Teacher Clarity Interest, Assertiveness, and Persuasiveness during Microteaching

Abstract

An experimental study was conducted to test the effect of a training program for secondary school preservice teachers on nonverbal sensitivity and expressive nonverbal behavior (vocal delivery, eye contact, facial expressions, gesturing, and body movement), and the effect of these behaviors on clarity, interest, verbal speech quality, assertiveness, and persuasiveness during a microteaching lesson.
The results indicate that expressive nonverbal behavior is trainable and that an increase in the level of expressiveness causes an increase in the majority of the variables (clarity, interest, assertiveness, and persuasiveness).

Zentrum für Neues Lernverfahren
Münzgasse 11 · D-7400 Tübingen 1 (West Germany)

CONTENTS

1.)	Theoretical background	1
2.)	Purpose and design of the study	17
3.)	Hypotheses	19
4.)	Instrumentation	19
5.)	The participants of the study	30
6.)	Treatments	31
7.)	Data analysis	33
8.)	Results	34
	8.1. Hypotheses 4 - 6 for effects on nonverbal sensitivity (PONS)	35
	8.2. Hypotheses 1 - 6 for effects on expressive nonverbal behavior	37
	8.3. Hypotheses 1 - 6 for low-inference variables: Frequency, duration in seconds, eye contact, unintended pauses / vocal segregates	43
	8.4 Effects of nonverbal behavior training on assertiveness, persuasiveness, speech quality, clarity, and interest	47
	8.5 Results concerning relationships between variables	53
	8.6 Attitudes of the participants toward the training	55
9.)	Summary/conclusions	56
10.)	References	63
11.)	Appendix	72

1. Theoretical Background

Over the last one hundred years, nonverbal aspects of human communication have been studied, with most of the work being done in the fields of anthropology (e.g. Birdswhistell 1970), sociology (Goffman 1963), psychology (e.g. Dittman/Llewellyn 1967, 1968, 1969; Ekman/Friesen 1967, 1972, 1975; Hall 1966; Scheflen 1976; Scherer/Giles 1979; Bugenthal et al. 1970), and speech (e.g. Ehrensberger 1945; Woolbert 1920; Jersild 1928). In the past 20 years, however, the importance of nonverbal aspects in the field of teaching has also been increasingly recognized. Two research reviews published in the past five years show evidence of the fruitfulness of the research in this area (Smith 1979; Woolfolk/Brooks 1983). Most of the studies on nonverbal behavior in educational settings were conducted to inquire into the role that nonverbal behavior (broadly defined as "all those elements of a communication which are not essentially linguistic in nature")(Smith 1979, p.629) plays in the formation and communication of the teachers' attitudes and expectations. Relatively few studies are reported in these reviews referring to the relationship of nonverbal behavior to directly observable productive pupil behavior and/or pupil achievement, because one important aspect is neglected in these reviews. It is an aspect which is investigated and trained in the field of rhetorics (speech) (see Ehrensberger, 1945) as well as classroom instruction: the expressive use of nonverbal behaviors which can be related to motivation, attention, and aid for the understanding of verbal information by providing punctuation, emphasis, structure, frame, commentary, and illustration. The more frequent (but still meaningful) use of nonverbal behavior or a higher level of nonverbal expressiveness during speech

is investigated and discussed. Nonverbal behavior is considered desirable as an ingredient or an expression of broader or more general - sometimes unscientific, strange, curious, or vague-terms like: energy, alertness, activity, expressiveness, persuasiveness, and recently: enthusiasm (Rosenshine 1970, 1971; Rosenshine/Furst 1973; Collins 1978; Bettencourt et al. 1983).

In a large number of papers and textbooks for instructional methods and for educational psychology this aspect of instructors' behavior is discussed and recommended from the point of view of philosophy (often based on Platon's Phaidros, e.g. Fink 1946; Nohl 1949), personality traits (e.g. Hamachek 1975; Ebel 1980), and teaching methods (e.g. Ausubel 1968; Gage/Berliner [2]1979; Tausch/Tausch [8]1979; Huber [10]1969; Stöcker [14]1970).

In the early educational research, reviewed by Barr (1948), 42 studies clustered under the label "buoyancy" (1) as a personality characteristics/quality show, with only one exception, consistent relationships to "consensus of opinion", student teaching ratings, inservice ratings, and pupil growth. Also, studies published after the reports of Barr in the US (e.g. Chambers 1973; Romine 1974) and in Europe (e.g. Keilhacker 1967; Aibauer 1954; Löwe/Preuss 1966; Baumgärtner 1969; Fippinger 1969; Seifert 1974) identified qualities such as vitality, enthusiasm etc. as important characteristic of effective teaching,or as being related to desired pupil variables like lowered pupil anxiety, increased interest, development of initiative, and student ratings of teacher effectiveness (Fittkau 1969; Müller-Wolf and Fittkau 1971; Seifert 1974; Solomon 1966).

---

(1) This group contains: optimism, enthusiasm, cheerfulness, gregariousness, fluency, talkativeness, sense of humor, pleasantness, carefreeness, vivaciousness, alertness, animation, idealism, articulativeness, expressiveness, wittiness.

Following the research tradition that began in the early 1960's, when teaching effectiveness was no longer seen as a function of some teacher characteristic but as a function of what the teacher is actually doing in the classroom (see Gage 1963; Withall/Lewis 1963), energy, enthusiasm, stimulation, animation, and expressiveness have again been studied, now as aspects of teaching behavior. Some of these studies helped determine which specific behaviors are comprised in enthusiastic, stimulating, and animated teaching. In the studies of Solomon et al. (1964), Wallen (1966), and Armento (1977) for "Energy", "Stimulation", or "Enthusiasm" relationships were found not only to verbal behaviors like "asking questions" (especially higher order questions), "praise and encouragement" etc. but also to variables like "amount of gesturing", "mobility", and "rapidity of speech".

When aiming at recommendations for classroom instruction or at designing teacher training programs, the most interesting studies are those in which the relationship of stimulating or enthusiastic behavior, and pupil behavior, pupil attitudes, and pupil achievement is investigated. Positive relationships of stimulating (vs. dull) teaching behavior on productive pupil behavior were found in the studies by Ryans (1960).

The relationship between energetic, enthusiastic teacher behavior and pupil attitudes and/or pupil ratings of teacher effectiveness was studied in four correlational and 11 experimental studies. While - with one exception (Solomon et al. 1964; $\bar{r} = -0.02$) - in correlational studies high positive and significant correlations were obtained (Good/Grouws 1975: $r = 0.47$; Evertson et al. 1978:

$\bar{r}$ = 0.48; McConnell 1977: r = 0.34), a positive influence of enthusiastic or expressive nonverbal behaviors on pupil attitudes could be revealed in only 8 experimental studies (Ware/Williams 1975; Williams/Ware 1977, 1976; Mastin 1963; Ahlbrand 1976; Wyckoff 1973; Kaufmann 1976; Breed 1971, study 1). Non-significant results were found in the studies 2, 3, and 4 of Breed (1971). (Training studies are reported in a later section).

In addition, in 15 correlational and 18 experimental studies the relationships between enthusiasm, nonverbal expressiveness, or single nonverbal behaviors and measures of student or audience achievement were investigated. Tables 1, 2, and 3 present major characteristics and the results of the studies. Out of the 15 correlational studies positive significant relationships with at least one measure of student achievement were obtained in 12 studies (McCoard 1944; Solomon et al. 1964; Kleinmann 1964; Wallen 1966, studies 1 and 2, Conners/Eisenberg 1966; Fortune 1967; Rosenshine 1968; Armento 1977; McConnell 1977; Evertson et al. 1978). In only 4 studies were no results or mixed results obtained (Brophy/Evertson 1974; Good/Grouws 1975; Unruh 1968; Borg 1975).

An estimated size of "enthusiasm/expressiveness"-achievement correlation is $\bar{r}$ = 0.28. It is therefore comparable with other variables found to be consistently related to pupil achievement, like clarity, variability (Rosenshine 1971), or "indirectness" in secondary classrooms (Glass et al. 1977). Taking only the studies where the variable under study is nonverbal behavior or at least where it contains expressive nonverbal behaviors in the manuals for training the observers (Evertson et al. 1978; Borg 1975; Good/Grouws 1975; Brophy/Evertson 1974; Unruh 1968; Solomon et al. 1964; McCoard 1944; Rosenshine 1968), a smaller

Table 1:
Enthusiasm and Expressive Nonverbal Behavior :
Process - Product - Studies
(Correlational studies)

Author:	Variable:	Context:	Results:
1) McCoard (1944)	Variation of speech factors (Pitch, Quality, Volume, Rate, Phrasing)	7 th and 8 th grades	Comprehension gain : rs = 0.28 - 0.46 r = 0.45x (Reading) r = 0.38x (Speaking) r̄ = 0.42
2) Solomon et al. (1964)	Among others: Factor 2: Lethargy vs. Energy	Evening college social studies	Factual gain: r = 0.23 Comprehension gain: r = 0.44x Student ratings: rs = -0.36 + 0.16 r̄ = -0.02
3) Kleinmann (1964)	Among others: Ryans Dimension Z stimulating - dull original - stereo-type	7 th/8 th grades science	Understanding of science: r ≈ 0.55
4) Wallen (1966)	Among others: stimulating	1 st grade reading arithmetic	Vocabulary, reading comprehension, arithmetic achieve-ment: rs = 0.29 - 0.51x r̄ = 0.37x
5) Wallen (1966)	Among others: stimulating	3 rd grade reading arithmetic	Vocabulary, reading comprehension, arithmetic achieve-ment: rs = 0.27 - 0.37 r̄ = 0.31
6) Conners/ Eisenberg (1966)	Among others: activity, variety	Pre-school, severely deprived children	Vocabulary: r = 0.26 (1)
7) Fortune (1967)	Among others: Ryans Dimension Z original - stereo-type/stimulating - dull	6 th grade English, Math. social studies (Microteaching-Situation)	Achievement: rs = 0.50 - 0.67 (r̄ = 0.58)
8) Unruh (1968)	Among others: enthusiasm gesture, movement	12 th grade social studies	Achievement: enthusiasm: rs = -.70 - .83 für r̄ = 0.0 gesture, movement: rs=-81 - 864 (r=-0.08)

(Table 1, cont.)

Author:	Variable:	Context:	Results:
9) Rosenshine (1968)	Among others: gesture and movement	12 th grade social studies	Achievement: gestures = 0.52 movement = 0.17 $\bar{r}$ = 0.34 teachers (1)
10) Brophy/ Evertson (1974)	Among others: enthusiasm	2 nd, 3 rd grades Math., Reading	Achievement: rs = -47 - +53, $\bar{r}$ = -0.04 year 1: High SES r = -0.18 Low SES r = +0.20 year 2: High SES r = -0.20 Low SES r = 0.27
11) Good/Grouws (1975)	Among others: enthusiasm	4 th grade Math.	Achievement: r = 0.02 student rating : r = 0.47x
12) Borg (1975)	Among others: enthusiasm and related variables (expr. nonverbal behavior)	4 th - 6 th grades social studies	Knowledge/comprehension: enthusiasm $\bar{r}$ = -0.10 expressive nonverbal behaviors $\bar{r}$ = 0.07 voice modulation $\bar{r}$ = .34x
13) Armento (1977)	Among others: expresses interest and enthusiasm in subject matter	Grades: 3 - 5, social studies	Achievement comprehension of concepts: r = 0.48
14) McConnell (1977)	Among others: enthusiasm (student rating)	9 th grades Math.	Achievement, analysis level: r = 0.26x student rating: r = 0.34 x
15) Evertson et al. (1978)	Among others: enthusiasm	7 th/8 th grades English, Math.	Achievement: rs = 0.07 - 0.37x ($\bar{r}$ = 0.18) student rating: r = 0.48x (2)

x indicates sign. p ≤ 0.05

1) Estimated on the base of formulas provided by Glass 1976

2) Estimated from Multiple regression analyses

Table2 :
Enthusiasm/Expressive Nonverbal Behavior (Process-Product Studies) (1)

Summary

Studies explicitely containing nonverbal behaviors	Studies not explicitely containing nonverbal behaviors
Grades 1 - 6	
Brophy/Evertson (1974) $\bar{r}$ = -0.04 Good/Grouws (1975) r = 0.02 Borg (1975) $\bar{r}$ = 0.34	Wallen 1966 a) $\bar{r}$ = 0.37 Wallen 1966 b) $\bar{r}$ = 0.31 Conners/Eisenberg (1966) $\bar{r}$ = 0.26 Armento (1977) r = 0.48 Borg (1975) $\bar{r}$ = 0.10
$\bar{r}$ = 0.107 (s = 0.204) (N = 3)	$\bar{r}$ = 0.304 (s = 0.140) (N = 5)
$\bar{r}$ = 0.214 (s = 0.19) (N = 7)	
Grades 7 - 12	
McCoard (1944) $\bar{r}$ = 0.42 Solomon et al. (1964) $\bar{r}$ = 0.335 Unruh (1968) $\bar{r}$ = -0.08 Rosenshine (1968) $\bar{r}$ = 0.34 Evertson et al. (1978) $\bar{r}$ = 0.18	Kleinmann (1964) $\bar{r}$ = 0.55 Fortune (1967) $\bar{r}$ = 0.58 Unruh (1968) $\bar{r}$ = 0.09 McConnell (1977) $\bar{r}$ = 0.26
$\bar{r}$ = 0.239 (s = 0.198) (N = 5)	$\bar{r}$ = 0.37 (s = 0.237) (N = 4)
$\bar{r}$ = 0.344 (s = 0.17) (N = 8)	
Across all studies: $\bar{r}$ = 0.284 (s = 0.187) (N = 15)	

$\bar{r}$ = 0.189 (s = 0.198) (N = 8)

$\bar{r}$ = 0.333 (s = 0.179) (N = 9)

(1) B. Rosenshine (1970) reported an earlier study of Wallen and Wodtke (1963) with sixty-five teachers of grades 1 through 5. High correlations (r's=0.29-0.65) were obtained between observer ratings on a variable called "recognition" and adjusted reading achievement scores. Since this ambiguous term was unlikely to fit into this report and the original study was not available the data of this study were not included in the calculation of $\bar{r}$.

Table 3:
Experimental Studies

Autor:	Variable:	Context:	Tests/Results:	
1) Woolbert (1920)	Attributes of sound while reading (emphasis devices)	University students (Turgeniew-stories)	Memorisation	+
2) Jersild (1928)	Modes of emphasis	University students (Biographies)	Recall	+
3) Ehrensberger (1945)	Modes of emphasis	College, social studies	Knowledge	+
4) Gauger (1951)	Gestures (high vs. no gesture)	11 th/12 th grades	Achievement	++
5) Mastin (1963)	Enthusiasm - indifference (about material)	6 th/7 th grades, social studies	Achievement Student ratings	++ ++
6) Coats/ Schmidchens (1966)	Dynamic - static	University students, social studies	Immediate recall	++
7) Breed (1971) Exp. 1	Eye contact and direction, four levels: excluded gaze, preferred gaze, gaze (occasionally) no gaze.	History. University students - lecture condition - seminar condition (microteaching setting)	Audience retention Student rating	++ o+
8) Breed (1971) Exp. 2	- Gaze - no gaze - Movement - no movement	University students, history (natural classroom setting)	Audience retention Student rating	o o
9) Breed (1971) Exp. 4	- Infrequent - frequent gaze, - Short - long gaze duration; videotaped lectures	University students, history	Audience retention Student rating	o o

(Table 3, cont.)

Autor:	Variable:	Context:	Tests/Results:	
10) Wyckoff (1973)	Stimulus variation (high vs. low)	Elem. and secondary school teachers and students	Achievement: Overall: Secondary: Elementary: Student rating	-- ++ -- +
11) Ware/ Williams (1975)	Enthusiasm (high vs. low)	University students social students	Achievement: (low in Bloom's Taxonomy) Student rating:	++ ++
12) Williams Ware (1976)	Enthusiasm (high vs. low)	University students Ed. Psych. high vs. low content coverage, incentives before and after lecture	Achievement: (knowledge/ comprehension): Student rating:	o(+) ++
13) Kaufmann (1976)	Dramatic active behaviors	College students	Achievement: Student rating:	++ ++
14) Williams Ware (1977)	Enthusiasm (high vs. low)	University students Psychology	Achievement: Student rating:	++ ++
15) Driscoll (1979)	High rates of eye contact gesturing and dynamic voice tone	10th grade students	Retention of of factual material	++
16) Otteson/ Otteson (1980) study 1	Teacher gaze	Primary school (story reading)	Story recall:	++
17) Otteson/ Otteson study 2	Teacher gaze	Primary school Kindergarten (story reading)	Story recall:	++
18) Land (1980)	Gestures, eye contact, vocal inflection vs. no gestures, no eye contact, no voice inflections	Undergraduate Students	Achievement:	+

++ = positive sign.
o = n.s.
-- = negative sign.

\+ positive direction (n.s.)
\- negative direction (n.s.)

average correlation of $\bar{r} = 0.20$ was obtained. This was to be expected, since expressive nonverbal behaviors are only part of broader concepts like stimulating, energetic, active, and enthusiastic teaching behavior ($\bar{r} = 0.37$).

The positive findings of these correlational studies are supported by most of the experimental studies. In three studies, positive indications for modes of nonverbal emphasis devices were established (Woolbert 1920; Jersild 1923; Ehrenberger 1945). Furthermore, significant positive effects were obtained in studies, in which a frequent use of gestures (Gauger 1951; reported by Rosenshine 1970), enthusiasm (Mastin 1963), dynamic teaching behaviors (Coats/Schmidchens 1966), (occasional) gaze (Breed 1971, study 1), high enthusiasm (Ware/Williams 1975; 1977), dramatic active behaviors (Kaufman 1976), high rates of eye contact, gesturing and dynamic voice tone (Driscoll 1969), and frequent teacher gaze (Otteson/Otteson 1980, studies 1 and 2) were contrasted with purposefully indifferent, static behavior, in which the qualities under study were absent.

Studies which do not support the use of expressive nonverbal behaviors indicate that motivation and attention (1) was induced by either content perceived as interesting to the audience or pupils or externally imposed incentives (Breed 1971; study 2; Williams/Ware 1976; Land 1980) which substituted for the function of expressive nonverbal behavior, and therefore the nonverbal behavior played only a minor role. Other studies, where no relationships between this variable and some outcome were found, show that expressive nonverbal behavior plays an important role only in contexts where verbal instruction of the teacher is the only source of information. Expressive nonverbal behavior was again shown to be less significant in studies where the method of instruction was inquiry or classroom discussion supplemented by written and/or audivisual materials (partly Borg 1975) and the objectives of instruction were primarily tool skills (reading, writing, arith-

(1) As mentioned above, this was considered as mediating links between teaching behavior and student outcome.

metic) which are learned effectively in early elementary grades through instruction-practice-feedback-sequences (Brophy/Evertson 1974; Good/Grouws 1975). This assumption is supported by the size of the average correlation coefficient for grade levels K-5 ($\bar{r}$ = 0.21) (Wallen 1966 study 1 and 2; Conners and Eisenberg 1966); Brophy and Evertson 1974; Good and Grouws 1975; Borg 1975; Armento 1977) and 6-12 ($\bar{r}$ = 0.34) (McCoard 1944; Unruh 1968; Rosenshine 1968; McConnell 1977; Evertson et al. 1978). This difference is comparable to the difference between the average correlation coefficient in studies where the variables under study are, or at least contain, expressive nonverbal behaviors. The average expressive nonverbal behavior - achievement correlation in studies conducted in grades 2-6 is $\bar{r}$ = 0.11 (Brophy and Evertson 1974; Good and Grouws 1975; Borg 1975), and the average correlation coefficient in studies conducted in grades 7-12 is $\bar{r}$ = 0.24 (McCoard 1944; Solomon et al. 1964; Unruh 1968; Rosenshine 1968; Evertson et al. 1978).

In three studies, there are indications that too much expressive nonverbal behavior destracts attention from content and produces no or negative effects (Brophy/Evertson 1974b; Wyckoff 1973; Breed, study 1). The negative results of two other studies (Breed 1971, Exp. 4,5), in which the effects of eye gaze during lectures on videotapes were studied, indicate that eye contact loses its effectiveness in attracting attention when the lectures are videotaped.

The mixed results of one study (Unruh 1968) cannot be explained on plausible or theoretical grounds; the contradictory results may be due to methodological problems (Rosenshine 1970; Glaser 1971).

This summary of research on expressive nonverbal behavior has produced relatively firm conclusions, strong enough to recommend that this aspect be included in teacher training programs. About 50 studies on training nonverbal perceptiveness and/or the training of nonverbal behavior were located. 10 studies could be identified in which the effect of some kind of intervention (discrimination training plus theory presentation, discrimination training plus feedback, encounter groups) was assessed from pretest to posttest. Significant positive gains were obtained in all studies (Allport 1924; Guilford 1929; Jenness 1932, study 1, study 2; Mittenecker 1960, study 1, study 2; Kohnle, 1971 (reported by Rosenthal et al. 1979); Mohamed 1974 (reported by Rosenthal et al. 1979); McCoid (reported by Rosenthal et al. 1979)) with the exception of one (Lanzetta and Kleck 1970). A calculation of an overall effect size based on 7 studies[1] results in $\overline{ES}$=0.87s. In some studies the effect of pretesting might have had an interaction effect with the training. In most of the earlier studies (Jenness 1932, studies 3 and 4; Kline and Johannsen 1935; Walton 1936; Mittenecker 1960 study 1; Miller et al. 1975 (reported by Rosenthal et al. 1979)) using still pictures (except for Miller et al.) only a small effect was obtained by merely retesting (overall $\overline{ES}$ = 0.10). Rosenthal et al. (1979) using the PONS-test (Profile of Nonverbal Sensitivity), got a strong significant effect in four samples ($\overline{ES}$ = 1.48). This test utilizes a 47-minute black and white film consisting of 220 two-second auditory and/or visual segments. After viewing each segment the participants mark one out of each alternative pair of descriptions provided on an answer sheet to characterize the respective nonverbal cue. When this test is used as a pretest, the practice in decoding nonverbal cues has an effect in itself on the posttest without any training

(1) In the studies of Mittenecker (1960) and (McCoid (1979) not enough data are reported to estimate effect sizes.

in between. This could be demonstrated not only in studies where the subjects were pre- and posttested, but also in two studies (Pinnas 1975; Klinzing et al. 1984b), in which a group of subjects was randomly assigned to a pretesting condition, and another group to a no-pretesting control condition ($\overline{ES}$ = 0.475). In 9 additional studies the effects of training on nonverbal perceptiveness were tested in a true experimental design against a control condition. Significant ($p<0.10$) positive results could be obtained in 5 of the studies (Davitz 1964; Jecker et al. 1965; Hansford 1977; Berkowitz, reported by Rosenthal et al. 1979; Phillips 1975), but not in the studies of Reich (1970), Strother et al. (1971), Guild (reported by Rosenthal et al. 1979), Huntley (1978), and Purdom (reported by Rosenthal et al. 1979). A calculation of an overall effect size results in $\overline{ES}$ = 0.23. The negative results in the studies of Guild and Purdom, both reported by Rosenthal et al. 1979, or the results of Phillips (1975) may be explained by the strong effects of pretesting on the PONS (Profile of Nonverbal Sensitivity, Rosenthal et al. 1979) providing practice in decoding nonverbal cues which dwarf any variance from a more indirect training. A global indirect training not directly aimed at nonverbal perceptiveness, especially when it is short, does not accomplish the objective of increasing nonverbal perceptiveness. This is indicated by the studies of Reich (1970) and Strother et al. (1971) in which there was a more global, indirect training directed at personal insights (4 1/2 hours: Reich 1970; Huntley 1978) or at general nonverbal expressions (2 hrs: Strother et al. 1971), at course work in nonverbal communication (Purdom, 1979), or at transcendental meditation (Guild 1979). Longer training, however, even when more indirect, successfully obtains the desired effects (Hansford 1977, 1 semester).

The results of 30 studies reported here indicate that even only a few hours of direct training (practice in decoding nonverbal cues with or without feedback) result in the desired effect. A short indirect training has no effect (Reich 1970; Strother et al. 1971; Huntley 1978; Guild, Purdom, reported by Rosenthal 1979). A longer (indirect) training aiming at behavioral changes (1 semester) also has an effect on nonverbal sensitivity as measured with PONS (Hansford 1977).

The same trend can be observed in studies in the field of counseling (Delaney 1966; Hertweg 1966; Mattis 1964; Ekman and Hoffman 1963; Hoffman 1964; and Pinnas 1975).

27 studies on training nonverbal behaviors or expressive nonverbal behaviors could be identified. In nine of these studies the training success was assessed in a scaled-down training situation (Cooper/Stroud 1967; Berliner 1969; Reich 1970; Pancrazio and Johnson 1971; Hodge 1972; Becker 1973; Pierce and Halinski 1974; Langthaler/Wodtke 1979, studies 1 and 2. In 18 studies the effects of training were assessed in real practice situations (Young 1973; Raymond 1973; Dawson et al. 1975, study 1 and 2; Phillips 1975; Borg 1975; Ellett and Smith 1975; Becker et al. 1977; Beisner 1977; Collins 1978; Huntley 1978; Dunn 1978; Garrett 1979, studies 1 and 2; Fetter 1981; Bettencourt 1979; Gillett and Gall 1981; Shum undated).

In fourteen studies significant positive results were obtained, and in eight studies, no results or only partially significant results were found (Berliner 1969; Hodge 1972; Borg 1975; Becker et al. 1977; Huntley 1978; Dunn 1978; Fetter 1981; Pierce/Halinski 1974; Pancrazio and Johnson 1971). In one study negative significant results were obtained for behaviors directly related to the training objectives (Becker 1973). An overall effect size results in $\overline{ES} = 0.89$ (1).

(1) Based on 16 studies. In the studies of Berliner (1969) Ellett and Smith (1974), and Shum (undated) not enough data were reported to estimate ES. The studies of Pierce and Halinski (1974), Garrett (1979), and Becker et al. (1977) were not included since they assessed only pupil achievement or overall energy as the criterion for training success. The studies of Young (1973) and Dawson et al. (1975) were disregarded because of a small N (N = 2 or 3, respectively).

Studies with no success had only a very short training period (less than 4 hours for a nonverbal teaching skill) and only one opportunity to practice the behaviors related to the training objectives. In some of these studies the training success was assessed in broader terms like "energy" (Becker et al. 1977). In other studies it was assessed in these terms in addition to terms directly related to the course objectives like energy or positive nonverbal interactions (Langthaler and Wothke 1979, study 1 and 2; Raymond, 1973); or pupil behaviors, such as correct pupil responses, pupil on-task behavior (Dawson et al., 1975, study 2; Gillett and Gall, 1981), pupil attitudes (Bettencourt 1979; Young 1973; Garrett 1979)(toward teacher or content), pupil achivement (Bettencourt 1979; Young 1973; Hodge 1973; Pierce and Halinski 1974), or student rating of teacher effectiveness (Raymond 1973) were assessed. While positive results could be obtained in variables which contain more than the behaviors emphasized in the training programs and in changes of desired pupil behaviors (correct pupil answers, on-task behavior), no significant results (Raymond 1973; Hodge 1973; Pierce and Halinski 1974, Bettencourt 1979), or negative results (Young 1973) were found in studies expecting changes in pupils attitudes or achievement due to the changes in nonverbal behavior achieved through training. As discussed at the beginning of this paper, there may be several reasons for these disappointing results. It is possible that an extreme, extensive use of nonverbal behaviors, or too high a level may destract pupils from learning (this might apply to the study of Young,1973). Another possibility is that the curriculum taught is so interesting for the pupils that nonverbal expressiveness of the teacher plays only a minor role (this might apply to the study of Bettencourt 1979). In the other studies, the treatment differences in the training program were so small that it seems unlikely that they produced any differences in student attitudes or achievement at

all (Raymond 1973; Hodge 1973; Pierce and Halinski 1974).

In summary, we can conclude with some confidence that the use of nonverbal behaviors and nonverbal perceptiveness can be changed by systematic training.

Based on the research evidence for the importance of nonverbal behavior, concerning especially its relationship to pupil behavior, a training program on expressive nonverbal behavior was designed for university students studying to become secondary school teachers. The development of this training program was based on the results of the training programs for nonverbal behavior and perceptiveness, mentioned above, in conjunction with results of comparable studies on verbal teaching behaviors (Joyce and Showers 1981, Klinzing-Eurich and Klinzing 1981; Klinzing 1982). This program was evaluated in five studies (Fitzner, 1982, 1983; Klinzing et al. 1983). The results of the studies provided consistently positive evidence for the trainibility of nonverbal sensitivity and expressive nonverbal behavior when the training program contains all of the following training components: presentation of theory, discrimination training, practice in a simulated and/or scaled-down situation, and feedback. From pretest to posttest there was a significant increase in nonverbal perceptiveness (measured by the PONS-test; $\overline{ES} = 1.50$), in the level of nonverbal expressiveness ($\overline{ES} = 1.37$), and in variables which contain more than the behaviors emphasized in the training program, such as warmth, activity, attention and interest ($\overline{ES} = 0.79$). In addition, in three studies it could be shown that the course gain could be maintained in retention tests after one, two, and three months, respectively. But because all five studies were integrated into the normal course work, they were only moderately controlled. The studies were

conducted in a pre-experimental design (pretest-posttest design) chosen specifically so that the reactive effect of the PONS-test (see above: Rosenthal et al. 1979) and the performance test were not controlled.
The test conditions were only roughly standardized; the content of the lectures serving as pre- and posttests and the time allotment were only moderately controlled. The trainers were the developers of the training program themselves and organized its evaluation. Therefore, it appeared to be necessary to replicate the studies under more highly controlled conditions in a true experimental design and with different trainers.

So it appeared necessary to replicate the studies under more highly controlled conditions in a true experimental design and with different trainers.
In addition to the earlier studies the effect of the training of nonverbal expressiveness on assertiveness (e.g. Argyle 1972; Serber 1972), persuasiveness (e.g. Mehrabian 1969; London et al. 1970; Maslow et al. 1971; Ekman and Friesen 1974), verbal speech quality (e.g. correctness of syntax, word selection), clarity, and interest were assessed, partly with modified instruments.

2. Purpose and Design of the Study

The purpose of this study was to test the effects of the training program mentioned above (in a shortened version) on nonverbal sensitivity and on expressive nonverbal behavior in the areas of vocal delivery, eyes, eye contact, facial expressions, gesturing, and body movement, and the effects of these behaviors on assertiveness, persuasiveness, speech quality, clarity, and interest in a scaled-down situation. Two formats of the training program (approx. 33 hours long) were designed for teaching expressive nonverbal behavior to secondary school preservice teachers. The formats for the training were identical with the exception that the

second format did not use video feedback in the five practice sessions so that this training program was about 5 - 6 hours shorter than the first.

The subjects in the two training conditions were measured at three times:
Pretest, posttest I and posttest II (follow-up after one week). The following time series design was used:

$$O_1 \quad X_1 \quad O_2 \qquad O_3$$
$$O_1 \qquad O_2 \quad X_2 \quad O_3$$

where: O_1 represents pretests used to control for initial levels of performance on the dependent variables

O_2 represents posttest I for determining the effects of the treatment versus no treatment

O_3 represents posttest II (follow-up) for determining the effects of the full treatment versus the effects of the 5 hours shorter version of the treatment

X_1 represents a 33-hour training program on expressive nonverbal behavior, and

X_2 a 28-hour version of the same training.

As time is of utmost importance in training, the shortened version of the treatment was developed to assess whether any decrement in outcome would result.

3. Hypotheses

The following effects were hypothesized:

H_1 There will be a significant interaction between treatment conditions (33 hours of training versus 28 hours of training) and time of testing (pretest versus posttest I versus posttest II(follow-up))

H_2 There will be a significant main effect between treatment conditions

H_3 There will be a significant main effect of times of testing

H_4 There will be no significant difference between treatment conditions at the time of pretest

H_5 There will be a significant difference between treatment conditions at the time of the posttest I

H_6 There will be a significant difference between treatment conditions at the time of the posttest II (follow-up).

4. Instrumentation

Pre- and posttests consisted of:

- the PONS-test (Rosenthal et al. 1979) to determine a profile of nonverbal sensitivity for each trainee (a),
- a performance test to determine if the trainees were able to apply the expressive nonverbal behaviors taught, and to assess the effects of the training on teacher assertiveness, persuasiveness, speech quality, clarity, and interest (b),
- paper-and-pencil tests to assess assertiveness, persuasiveness, extraversion, and directiveness (c),
- a post-course questionnaire designed to elicit the participants' subjective evaluation of the course (d).

a) Nonverbal Sensitivity

A test of nonverbal sensitivity was administered at the time of pretest, and posttest I for group I (treatment condition I), and at pretest, posttest I, and posttest II for group II (treatment condition II).
This test, the Profile of Nonverbal Sensitivity (PONS) was developed by Rosenthal and associates (1979) and utilizes a 47-minute black-and-white 16mm film and soundtrack composed of 220 numbered 2-second auditory and/or visual segments. In each segment, a young women portrays one of 20 different situations such as "expressing strong dislike", "helping a customer", "asking forgiveness", "admiring nature". The 20 situations are arranged into four affective quadrants:

Figure 1:
The 20 Scenes of the PONS-Test Arranged by Affect in Four Quadrants

POSITIVITY	DOMINANCE: Submissive	DOMINANCE: Dominance
Positive	• helping a customer • ordering food in a restaurant • expressing gratitude • expressing deep affection • trying to seduce someone	• talking about one's wedding • learning on a trip • expressing motherly love • admiring nature • talking to a lost child
Negative	• talking about the death of a friend • talking about one's divorce • returning faulty item to a store • asking forgiveness • saying a prayer	• criticizing someone for being late • nagging a child • expressing strong dislike • threatening someone • expressing jealous anger

(From Rosenthal et al. 1979a)

BEST COPY AVAILABLE

These 20 scenes are presented through different channels of nonverbal communication: Face, body (neck to knees), and voice tone (electronic content filtered voice and randomized spliced voice). The 220 scenes are represented in the following 11 modes:

1)	Face alone	(20 scenes)
2)	Body alone	"
3)	Face plus body	"
4)	Electronically filtered voice alone	"
5)	Randomized spliced voice alone	"
6)	Face + randomized spliced voice	"
7)	Face + electronically filtered voice	"
8)	Body + randomized spliced voice	"
9)	Body + electronically filtered voice	"
10)	Face plus body + randomized spliced voice	"
11)	Face plus body + electronically filtered voice	"
	Total	220 scenes

Evidence for reliability and validity of the PONS-test is reported by Rosenthal et al. (1979b).

b) Performance Test

All participants in the study were asked to conduct a three-to-four-minute lecture on a prescribed topic. The topics chosen were the three topics that received the most favorable ratings from a sample of similar trainees. These topics were then assigned to the participants for the pretest, posttest I, and posttest II. These topics involved political and social themes found to be of interest to university students in the earlier survey ("Peace and Disarmament";"Environmental and Nuclear Problems"; and "Social-political Problems in West Germany"). They were considered to be sufficiently general so as to not interact with the trainee's areas of the study. A questionnaire was given at the end of the study to check the level of interest in the topics, and this assumption was confirmed.

The participants were given five minutes to prepare their lectures based on written information about the topic given to them. They then presented the lectures to two observers (one female, one male) who served as an audience sitting at an appropriate distance from the lecturer. The lecturer was audio- and videotaped in a standardized manner for further analysis. Tapes of these lectures were given to 15 observers (psychology students) after the order of the tapes had been systematically varied. The following aspects were rated independently:

- level of nonverbal expressiveness (4 observers)
- frequency and duration of eye contact as well as speech disfluencies (2 observers)
- assertiveness (2 observers)
- persuasiveness (3 observers)
- speech quality (2 observers)
- clarity (4 observers)
- interest (4 observers).

For each of the variables there was a balance of male and female observers.

Nonverbal Expressiveness

The variables used to define and measure the level of the trainees' nonverbal expressiveness were: vocal delivery, eyes, eye contact, facial expressions, gestures, and body movement. The descriptors or indicators used to identify, measure, and communicate high and low nonverbal expressiveness were based partly on the definition of teacher enthusiasm by M.L. Collins (1978), modified for the purpose of this study (Fitzner 1983; Klinzing et al. 1983). The definitions were derived from studies on teacher enthusiasm as reported by Rosenshine (1970), field observations, and from the opinions of teacher educators and experts (Collins 1978). Descriptors of enthusiasm developed by M.L. Collins which contained verbal behaviors ("word selection" and "acceptance of ideas and feelings") as well as the descriptor for "overall energy" were skipped, and one descriptor for "eye contact"

was added. So the final instrument contained 6 five-point scales for the assessment of nonverbal expressiveness.

Four observers (2 males, 2 females) were trained for about 10 hours in the use of this instrument. The training was based on a 15-minute videotape describing the five points of the rating scale and demonstrating the different levels of nonverbal expressiveness for all six channels. On the basis of written material containing a more detailed description of each channel and level, and a series of still pictures, the observers were trained using role playing techniques. As the final step in the training the observers rated a series of videotapes from earlier experiments (comparable to the tapes of this study). The training was complete when the observer's ratings reached a nearly perfect agreement with an expert rating. Before the observers independently rated the tapes of this study, the agreement with an expert rating (based on six tapes not viewed previously by the observers) was computed. The observer agreement during the study and the observer stability was also checked.

Table 4 presents the observer agreement with an expert rating, the agreement of the observers with each other, and the observer stability over time (from the beginning of the observations to their end, based on six tapes).

Table 4:

Observer Agreement with an Expert Rating, Agreement of Observers with Each Other, and Observer Stability over Time for Ratings of Expressive Non-Verbal Behaviors (Product-Moment Correlation) (4 Trained Observers)

Variables	Agreement with an Expert Rating (based on 6 tapes)*	Agreement of Observers with each other (based on 38 tapes)**	Observer Stability over Time (based on 6 tapes)**
Vocal delivery	0.89	0.71	0.95
Eyes	0.99	0.65	0.89
Eye contact	0.99	0.70	0.93
Facial expressions	0.95	0.72	0.96
Gestures	0.98	0.72	0.96
Body movement	0.98	0.71	0.94
Overall	0.98	0.76	0.93

* Each of the three observer ratings was correlated with an expert's rating. These four correlations were converted to Fisher's z, averaged, and, then, reconverted to a Pearson correlation.

**Each of the four observer ratings were correlated with each other. These correlations were converted to Fisher's z, averaged, and, then, reconverted to a Pearson correlation.

BEST COPY

An analysis of Table 4 reveals a nearly perfect agreement of the observers with expert ratings as well as observer stability.

In addition to the high- (or middle-) inference measures for two variables for disfluency of speech, verbal segregates/ unintended pauses, and eye contact, low-or moderate-inference measures were also assessed. The two observers who served as an audience and to whom the trainees presented their lectures, recorded the eye contact by a hidden electric switch (operated by foot) which served as a base for the calculation of the frequency and time of eye contact. For verbal segregates /unintended pauses, a 5-point rating scale was developed. Table 5 shows observer agreement and stability for this variable.

Table 5

Observer Reliabilities for Verbal Segregates/ Unintended Pauses (2 Trained Observers)

Variable	Agreement of Observers with each other (based on 6 video tapes) r
Vocal Segregates, Unintended Pauses	0.60

Assessment of the Effects of the Training in Nonverbal Expressiveness

Four other groups of observers assessed the assertiveness, persuasiveness, speech quality, clarity, and interest of the lectures to measure the effects of the nonverbal behavior training.

Assertiveness

Parts of the Emotional Inventory (EMI-B) developed by Ullrich and Ullrich (1976) were used for the assessment of assertiveness.
The following factors of the EMI-B (Ullrich and Ullrich, 1977) were used (Kunkel, Schiefer and Steiger 1984)

Factor: I anxious vs. unanxious state (12 items)
II depressive vs. cheerful state (6 items)
III exhaustive vs. dynamic state (6 items)
IV inhibitory vs. spontaneous state (6 items).

Assertiveness was assessed by two observers (one male, one female) in 30 6-point adjective scales. The two observers received 5 hours of training on the same videotapes from the study.(For observer agreement and stability over time, see Table 4).

Persuasiveness

Kunkel, Schiefer and Steiger (unpublished paper 1982; Kunkel, Schiefer, and Steiger 1984) developed a 18-item rating scale (6-point bipolar adjective scale) on persuasiveness.
A factor analysis in a pilot study resulted in three factors: social attractiveness (6-items), credibility (6 items) and strength, and energy, which explained 68,3 % of the variance.
The observer training for the three observers lasted about five hours and was based on videotapes taken during the study. (For observer agreement and stability over time, see Table 6).
The observers independently rated all videotapes of the lectures.

Speech Quality

A five-point rating scale (10 items) developed by Kunkel, Schiefer,and Steiger (1984) was used to measure the quality of speech (e.g. word selection, disfluency, syntax). Two raters were trained for five hours with videotapes from the study. They independently rated audio-recordings of the lecture. Audio-recordings were selected to avoid any influence of the lecturers' non-verbal behavior.

Table 6 presents the observer agreement and observer stability over time for assertiveness, persuasiveness, and speech quality.

Table 6:

Observer Agreement and Observer Stability over Time for Assertiveness, Persuasiveness, and Speech Quality

Variable	Observer Agreement (based on 6 videotapes) r	Observer Stability over Time (based on 6 videotapes) r
Assertiveness (2 observers)	0.59	0.67
Persuasiveness (3 observers)	0.68	0.81
Speech Qualitiy (2 observers)	0.60	0.44

Each of the three observer ratings was correlated with each other. These correlations were converted to Fisher's z, averaged, and then reconverted to a Pearson correlation.

Clarity, Interest

For the assessment of clarity and interest of the lectures two instruments were developed: a nine-item and a ten-item bipolar adjective scale.
Four (three?) observers without any training observed all videotaped lectures intuitively (2 psychology students, 2 students of pedagogy).

Table 7 presents observer agreement and observer stability over time for both instruments.

Table 7: Observer Agreement and Observer Stability Over Time for Clarity and Interest of the Lecture (Intuitive Ratings)

Variable	Observer Agreement (based on 6 videotapes) $\bar{r}$	Observer Stability (based on 6 videotapes) $\bar{r}$
Clarity	0.68	0.55
Interest	0.67	0.41

Each of the four observer ratings was correlated with each other. These correlations were converted to Fisher's z, averaged, and then reconverted to a Pearson correlation.

Unfortunately the interrater reliabilities for assertiveness, persuasiveness, speech quality, clarity, and interest are not as high as expected.

c) Paper-and-Pencil Tests on Assertiveness, Persuasiveness, Directness, and Extraversion

Assertiveness, Persuasiveness

As pre- and posttests (I and II) the same instruments on assertiveness and persuasiveness (see above) were used by the participants as self-ratings.

A factor analysis for the self-ratings done in a pilot study by Kunkel, Schiefer and Steiger(1984) resulted in three factors: "Social Attraction", "Credibility", and "Strength/Energy" which explained 85,2 % of the variance.

Directiveness/Extraversion

To assess the directiveness and extraversion of the participants, the "Fragebogen zur direktiven Einstellung" (F-D-E)(Bastine 1971) was used, which contains 16 items (five-point scales) to determine extraversion (derived from a questionnaire developed by Brengelmann and Brengelmann, 1960). The reliabilities for both scales are relatively high (internal consistency in several samples ranged from 0.80 to 0.89, test-retest reliability from 0.80 to 0.95) (Bastine 1971). Evidence for validity of this test is given by Bastine (1971)

d) Post-Course Questionnaires

After post-taping was completed and after posttest II was administered, each participant of group I (treatment condition I) and group II (treatment condition II) was given a questionnaire to elicit his/her reactions to the course (in general), its content and objectives, his/her opinion of his/her own learning success, and the reactions to the components of the course.

Two months after the completion of the course a second questionnaire (developed by Kunkel, Schiefer, and Steiger 1984) was mailed to the participants. This questionnaire consisted of 21 6-point rating scales to assess the estimated training success in the use and perception of nonverbal behavior.

5. The Participants of the Study

35 university students (17 male, 18 female; average age $\bar{x}$ = 24 years; number of semester studied: $\bar{x}$ = 7.5) who were studying to become secondary school teachers in various subjects (see Table 7) volunteered for the study. They chose this course because the hours fullfilled credit requirements.

The participants, for the most part, were randomly assigned to the two training conditions (groups I and II), but in some cases a specific assignment to one or the other condition was made to accommodate for a particular student's academic schedule. (In special interviews it was assessed that schedule problems were the true reasons for these special assignments.)

One female student (in treatment condition II) was unable to participate in the posttest II because of scheduling problems; therefore her data were not included in this study. 18 students remained in treatment condition I (group I) and 16 in treatment condition II (group II).

Table 8 gives a synopsis of the age, average number of semesters studied at the university and the majors of the remaining 34 participants.

BEST COPY

Table 8:

Characteristics of the Participating University Students in Treatment Conditions I and II.

Sample Size	Treatment Condition I (Group I)	Treatment Condition II (Group II)
Sample Size	18	16
Sex	6 male 12 female	11 male 5 female
Age	$\bar{x}$=23.88 (s =1.68)	$\bar{x}$=24.81 (s =2.22)
Number of Semesters studied at University	$\bar{x}$=7.67 (s =2.74)	$\bar{x}$=7.38 (s =2.75)
Subject Matter Area Combinations Studied by the Students	Theology with Philology : 5 Theology with Natural Sciences : 1 Philology with Philology : 5 Philology with Natural Sciences : 3 Natural Sciences with Natural Sc. : 1 Sports with Natural Sciences : 1 No data : 2	Theology with Philology : 6 Theology with Natural Sciences : 0 Philology with Philology : 5 Philology with Natural Sciences : 0 Natural Sciences with Natural Sc. : 2 Sports with Philology : 2 No data : 1

6. Treatments

The training intervention lasted ten days (including pretest, posttest I and posttest II) with the subjects meeting daily for seven to eight hours[1]. The treatment of group II (treatment condition II between posttest I and posttest II) was slightly reduced by about 5-6 hours. In this treatment condition, the videotape feedback for three practice sessions, i.e. the self-analysis, was left out.
(Elements of the training and the time table are reported in appendix I.)

(1) The training was based on a program developed by Fitzner (1982, 1983) and Klinzing (Klinzing et al. 1983)

The training time was 33 hours for group I (treatment condition I) and 26 hours for group II (treatment condition II). The training time included: discussion, exercises for relaxation and breathing, organizational informations, and breaks. So the pure training intervention between pretest and posttest I (group I) or posttest I and posttest II (group II), respectively, lasted about 4 days for each group. The pretests were conducted after a general introduction (30 minutes) to nonverbal communication and the specific course objectives and suggested instructional techniques[1]. The training was then organized around the nonverbal areas[2]:

1) Voice modulation (group I: 10 hours; group II: 9 hours)
2) Facial expressions, eyes, and eye contact (group I: 4 hours, group II: 2 1/2 hours)
3) Body movement/Posture (group I: 2 1/2 hours, group II: 1 1/2 hours)
4) Gestures (group I: 3 1/2 hours; group II: 2 1/2 hours)

- General information (1 1/2 hours)
- General discrimination training (1 1/2 hours)

The training was arranged so that it concentrated on each of channels separately but so that all the behaviors trained in earlier stages were integrated into the later stages.

---

(1) This was done to avoid behavioral changes from pre- to posttest only because the participants did not know what was expected from them in the pretest.

(2) Pure training time without exercises for relaxation, discussions, organizations, breaks and time for testing.

The training for each channel consisted of

- Group instruction (theory presentation)
  Information from research about the function and effects of behaviors related to the area of nonverbal communication.
  (10-25 min. for each of the areas)

- Discrimination training
  Identification/discrimination of specific behaviors related to the area of nonverbal behavior
  (20-70 min. for each area)

- Preliminary exercises
  Exercises in game or simulation format to increase the use of specific behaviors in the area of training
  (20 - 370 min.)

- Self-analysis of own performance (for group I only)
  Based on the audio- or videotapes
  aimed at identifying one's own deficiencies and at stating objectives for further training
  (40 - 60 min. for each of the areas)

- Practice in small groups with feedback
  in a microteaching format
  (1 - 2 hours for each of the areas)

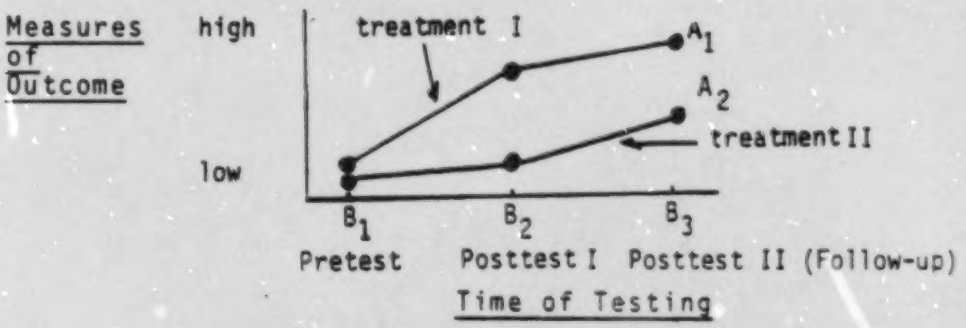
7. Data Analysis

The data were analyzed using repeated measures 2 x 3 ANOVA, in which the first factor was the two training conditions (pretest-treatment - posttest I - posttest II (follow-up) versus pretest t

- posttest I-(reduced) treatment - posttest II (follow up), and the second factor was the time of testing (pretest, posttest I, posttest II (follow-up)).

Thus, results corresponding to an "A" main effect, "B" main effect, and "A x B" interaction were obtained from the analysis. It was hypothesized that all effects would be significant at the $p \leq .05$ level of confidence, since an interaction could be predicted from the order in which the treatments were administered to the two groups. An "A" main effect could be predicted from the somewhat shorter training time (5 hours shorter) experienced by the second group relative to the first group, and a "B" main effect could be predicted from the increase in outcome expected from pre to post I and from post I to post II (follow-up) for the groups. These expected results take the following form:

Figure 2:



Since expected differences between groups at B_1, B_2, and B_3 were theoretically derived and hypothesized prior to the study, tests for a priori comparisons were computed. These tests determined the initial equivalence of the two groups on all dependent measures (test at B_1), the effectiveness of the full treatment, A_1 versus a control, A_2 (test at B_2), and the effectiveness of the shortened treatment, A_2, versus the full treatment, A_1 (test at B_3).

8. Results

For each group of variables: nonverbal sensitivity (8.1), nonverbal expressiveness (8.2), and low-inference measures

(8.3), as well as measures for the effects of changes in nonverbal expressiveness on assertiveness, persuasiveness, speech quality, clarity, interest, the results are reported as follows (8.4).
Firstly, the descriptive statistics (means and standard deviations) are given in a table format and are graphically illustrated. This is followed by the results related to the hypotheses (ANOVA and t-test results).

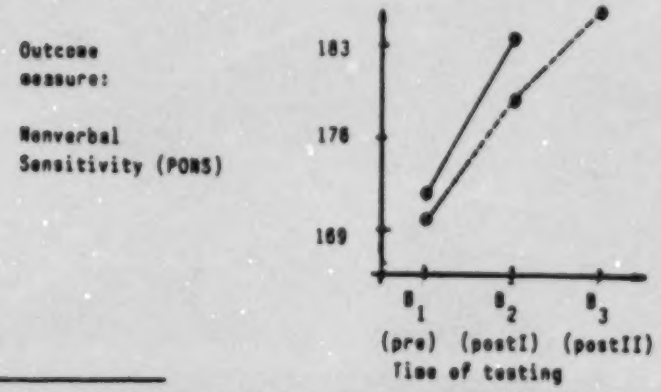
8.1. Hypotheses 4 - 6 for Effects on Nonverbal Sensitivity(PONS)[1]

Descriptive statistics for the PONS data are displayed in Table 9 and Figure 3.

Table 9:
Means and Standard Deviations for Nonverbal Sensitivity (Profile of Nonverbal Sensitivity: PONS) / Treatment Conditions I and II (Group I and II)

Variable	Treatment Condition (Group)	Pretest M	Pretest SD	Posttest I M	Posttest I SD	Posttest II M	Posttest II SD
PONS	I	171.6	9.0	183.5	7.9	-	-
	II	169.6	7.7	178.9	4.4	185.8	7.2

Figure 3: Means for Training Conditions I and II(——,----) (Group I and II) at Times of Testing (Pretest, Posttest I, Posttest II)



(1) Since there were no data for group I (treatment I) for posttest II, only t-tests for differences of pretest, posttest I, and posttest II were computed.

The data indicate that although the treatment was not directly aimed at the dimensions displayed in the PONS-tests, the training did have the intended effect on nonverbal perceptiveness. In treatment condition I (group I) the nonverbal perceptiveness increased substantically from pre- to posttest I. Group II also made substantial gains, although not as great as those of group I. The nonverbal perceptiveness increased again substantially from posttest I to posttest II.

T-tests

Since there were no data for group I in posttest II only t-tests were computed.

Table 10:
T-Tests for Treatment Condition I and II at Times of Testing B_1, B_2, B_3 (Pretest, Posttest I, Posttest I/ Posttest II)

Pretests B_1		Posttests I B_2		Posttest I/ Posttest II B_3	
t	p	t	p	t	p
0.71	0.48	2.09	0.05	1.87	0.39

As hypothesized (hypotheses 4 - 6), no significant difference is found between the treatment conditions I and II (group I and II) at the time of the pretest (H4), but a significant ($p<0.05$) difference is found at the time of posttest I (H5). Hypothesis 6 could not be tested. Unexpectedly, no significant ($p<0.05$) difference between treatment condition I (group I) at the time of posttest I and treatment condition II (group II) at the time of posttest II is found.

8.2. Hypotheses 1 - 6 for Effects on Expressive Nonverbal Behaviors

Descriptive statistics for the six indicators for nonverbal expressiveness for the pretest, posttest I, and posttest II (follow-up) are displayed in Table 11 and Figures 4 a - g.

Table 11:
Means and Standard Deviations for Treatment Conditions I and II (Group I and II) in Participants' Expressive Nonverbal Behaviors (Pretest, Posttest I, Posttest II)

Variables	Group	Pretest M	Pretest SD	Posttest I M	Posttest I SD	Posttest II M	Posttest II SD
Vocal delivery	I	2.64	0.46	3.13	0.70	3.04	0.46
	II	2.39	0.58	2.50	0.66	3.39	0.97
Eyes	I	2.50	0.59	2.94	0.43	2.92	0.37
	II	2.38	0.41	2.67	0.59	3.05	0.83
Eye contact	I	2.71	0.65	3.25	0.65	3.49	0.50
	II	2.72	0.65	2.77	0.73	3.53	0.83
Facial expressions	I	2.18	0.89	2.85	0.59	2.62	0.51
	II	2.11	0.50	2.50	0.69	3.05	0.81
Gestures	I	1.98	0.71	3.10	0.86	3.07	0.96
	II	2.09	0.68	2.47	0.77	3.66	0.89
Body movement	I	1.63	0.64	2.21	0.72	2.15	0.83
	II	1.64	0.57	1.87	0.59	2.72	0.88
Overall	I	2.27	0.54	2.91	0.57	2.88	0.51
	II	2.22	0.44	2.46	0.74	3.23	0.75

BEST COPY

Figures 4 a, b, c, d, e, f, g:

Means for Treatment Conditions I and II (Group I and II) at Times of Testing: B_1, B_2, B_3 (Pretest, Posttest I and Posttest II) (—— Group I, ---- Group II).

Figure 4 a:

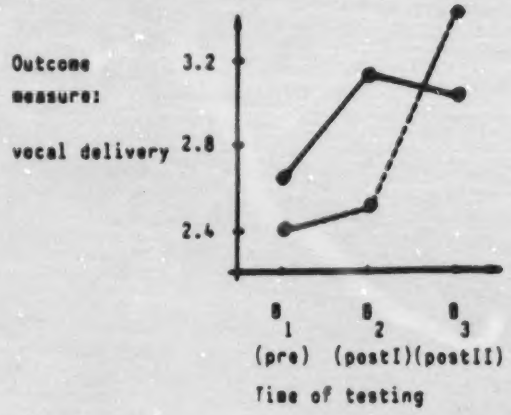


Figure 4 b:

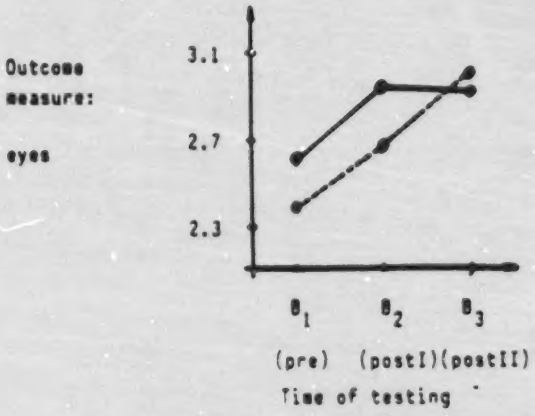
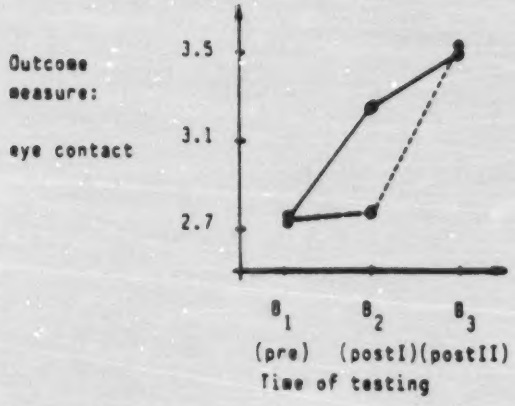


Figure 4 c:



BEST COPY

Figure 4 d:

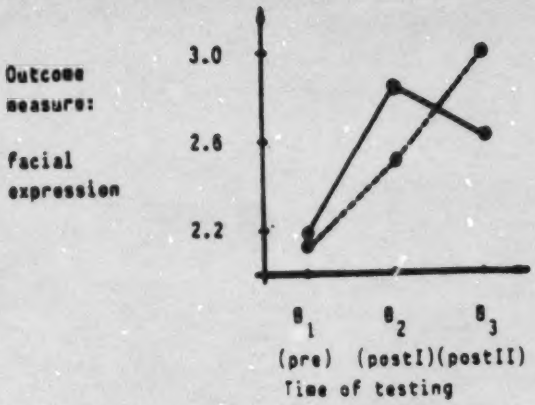


Figure 4 e:

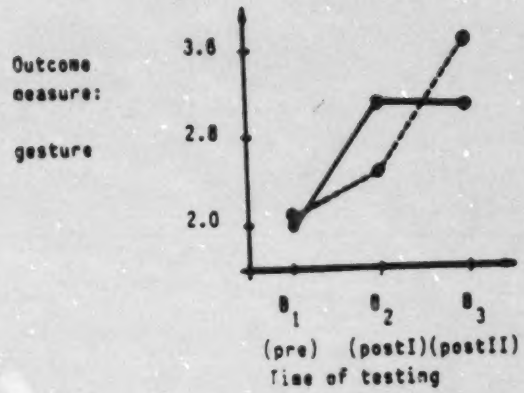


Figure 4 f:

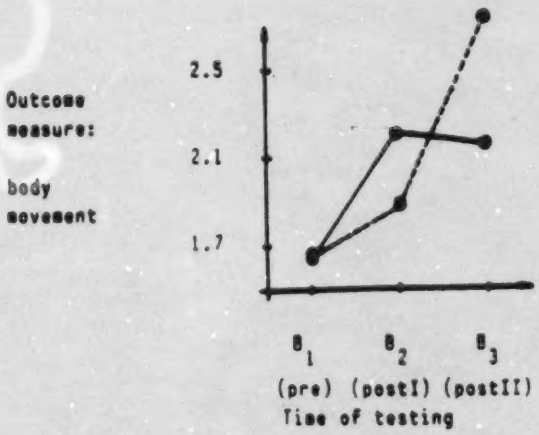
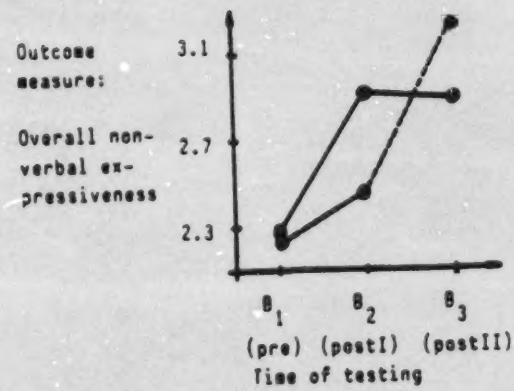


Figure 4 g:



The data suggest that the training had the intended effect on nonverbal expressiveness: In treatment condition I (group I) the level of use of all six indicators for nonverbal expressiveness used by the participants increased substantially between the pretest and the posttest. This training success could be maintained in posttest II (follow-up) one week later; there was only a slight drop in facial expressions.

Though the participants in treatment condition II (group II) made only slight gains from pretest to posttest I (especially in eyes, facial expressions, and gestures), their level of expressiveness in all of the nonverbal modalities increased substantially.

Group II used an unexpectedly higher level of expressiveness at the time of posttest II than the participants of treatment condition I (especially in vocal delivery, facial expressions, gestures, and body). This could be due to the slight drops in treatment condition I (Group I), and/or the slightly higher gains made in treatment condition II (group II) from posttest I to posttest II in comparison with group I.

Table 12 presents ANOVA results for expressive nonverbal behavior.

Table 12:

Analysis of Variance for Expressive Nonverbal Behavior (F- and p-values)

Variable	Factor	F	P
Vocal delivery	A (treatment condition)	3.19	0.09
	B (time of testing)	11.89	0.01
	A x B	6.48	0.01
Eyes	A	0.54	0.47
	B	20.50	0.00
	A x B	1.93	0.16
Eye contact	A	1.25	0.27
	B	23.85	0.00
	A x B	1.87	0.16
Facial expressions	A	0.00	0.96
	B	13.52	0.00
	A x B	3.19	0.05
Gestures	A	0.32	0.58
	B	31.92	0.00
	A x B	5.64	0.01
Body movement	A	0.09	0.77
	B	22.71	0.00
	A x B	7.60	0.01
Overall nonverbal expressions	A	0.669	0.42
	B	32.950	0.00
	A x B	6.759	0.01

As hypothesized (hypothesis H1 and H3) there is a significant ($p < 0.05$) interaction between the treatment conditions (group I and II) and the time of testing (pretest, posttest I, posttest II) for the expressive use of vocal delivery, facial expressions, gestures, body movement, and overall nonverbal expressiveness (not for eyes and eye contact), and there is a high significant main effect of the times of testing (B) for all variables. There is, however, no main effect between treatment conditions (factor A) in all variables (hypothesis 2).

Table 13 presents the t-values and levels of significance for nonverbal expressiveness at the pretest, posttest I and posttest II.

Table 13:

T-Values and Level of Significance for Treatment Conditions I and II (Groups I and II) at the Time of Testing B_1, B_2, B_3 (Pretest, Posttest I, Posttest II)

Variable	Time of testing							
	Pretest B_1		Posttest I B_2		Posttest II B_3		Posttest I Group I vs. Posttest II Group II	
	t	p	t	p	t	p	t	p
Vocal delivery	1.40	0.17	2.61	0.01	-1.30	0.21	1.93	0.19
Eyes	0.71	0.49	1.56	0.13	-0.75	0.47	-0.56	0.58
Eye contact	-0.05	0.96	2.02	0.05	-0.19	0.85	-1.09	0.29
Facial expressions	0.28	0.78	1.56	0.13	-1.83	0.08	-0.83	0.41
Gestures	-0.56	0.58	2.17	0.04	-1.80	0.08	-1.85	0.07
Body movement	-0.07	0.94	1.47	0.15	-1.92	0.07	-1.86	0.07
Overall nonverbal expressiveness	0.28	0.78	2.33	0.03	-1.59	0.12	-1.42	0.17

Two-tailed test

As hypothesized (hypothesis H4) there is no significant ($p < 0.05$) difference between treatment conditions I and II at the time of the pretests. But there are significant differences at posttest I (hypothesis 5) for the variables: vocal delivery, eye contact, gestures, and overall nonverbal expressiveness.

Hypothesis 6 had to be rejected because no significant ($p \leq 0.05$) differences between treatment conditions at the time of posttest II (B 3) are found.

(There are also no significant differences between treatment condition I (group I) at the time of posttest I and treatment condition II (group II) at the time of posttest II).

8.3. Hypotheses 1 - 6 for Low-Inference Variables: Frequency, Duration in Seconds, Eye Contact, Unintended Pauses, Vocal Segregates

The descriptive statistics for the frequency of eye contacts, duration of eye contact (time), and pauses in speech/vocal segregates are displayed in Table 14 and Figures 5 a - c.

Table 14:

Means and Standard Deviations for Low-Inference Variables: Eye contact (Frequency, Duration in Sec.) and Vocal Segregates/Unintended Pauses

Variable	Treatment condition (Group)	Pretest M	Pretest SD	Posttest I M	Posttest I SD	Posttest II M	Posttest II SD
Vocal Segregates/ Pauses (1)	Group I	3.75	0.77	4.17	0.77	4.47	0.62
	Group II	3.53	1.04	3.70	1.03	3.88	0.67
Eye contact Time	Group I	25.3	13.7	43.8	21.9	47.2	19.0
	Group II	24.1	18.0	27.4	21.1	57.3	27.5
Eye contact Number	Group I	41.4	22.6	57.0	21.8	60.7	19.0
	Group II	39.3	23.4	33.3	15.4	62.1	19.0

(1) Higher values indicate less vocal segregates/(unintended) pauses

Figures 5 a, b, c:

Means for Treatment Conditions I and II (Groups I and II) at the Times of Testing B_1, B_2, B_3 (Pretest, Posttest I, Posttest II)(—— Group I, ---- Group II).

Figure 5 a:

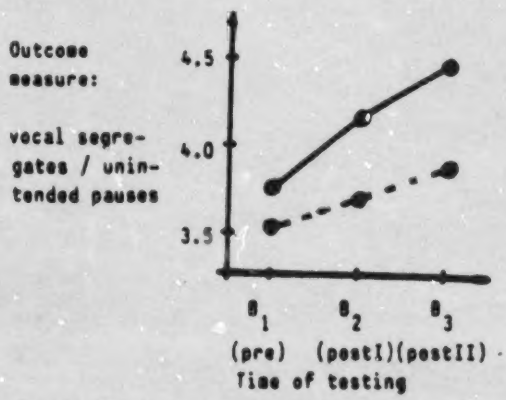


Figure 5 b:

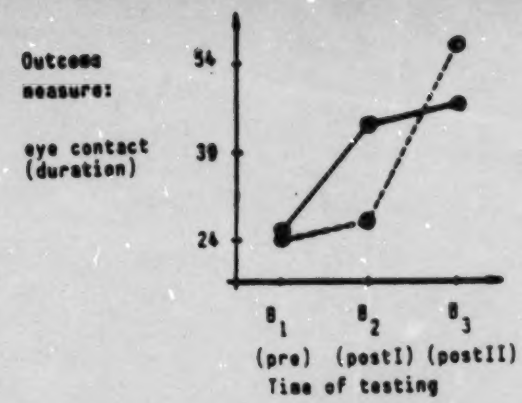
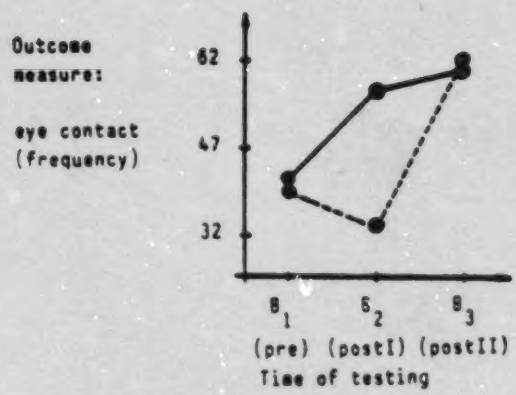


Figure 5 c:



The effects of the training indicated by the data show that there was an increase in the duration and frequency of eye contact from pretest to posttest I for the participants in treatment condition I. They also reduced their vocal segregates/unintended pauses. From posttest I to posttest II the participants either maintained the training success or made slight gains. In treatment condition II (group II) there were only slight differences in vocal segregates/unintended pauses and in eye contact duration from pretest to posttest I, but a drop in the frequency of eye contact. While there was a substantial gain in eye contact from posttest I to posttest II, only a slight reduction in vocal segregates/unintended pauses appeared. At the time of posttest II, the participants in treatment condition I had a slightly lower amount of unintended pauses/vocal segregates, but they used a slightly lower duration of eye contact. Both groups maintained a similar frequency of eye contacts in posttest II.

BEST COPY AVAILABLE

Table 15:

Analysis of Variance for Low-Inference Variables: Vocal Segregates/Unintended Pauses, Eye Contact (Duration/Frequency) (F- and p-Values)

Variable	Factor	F	p
Vocal Segregates, Unintended Pauses	A	2.59	0.12
	B	3.99	0.02
	A x B	0.14	0.87
Eye contact (Time)	A	0.23	0.63
	B	24.92	0.00
	A x B	3.34	0.04
Eye contact Number (Frequency)	A	2.44	0.13
	B	17.58	0.00
	A x B	5.17	0.01

As hypothesized, (hypotheses H1 and H3), there is a significant ($p<0.05$) interaction effect of treatment condition and time of testing for eye contact (frequency and duration); no effect for vocal segregates/unintended pauses; and a significant main effect for time of testing (B), but no main effect could be obtained for the treatment conditions (hypothesis H2).

An interesting result is that there are significant correlations between frequency and duration of eye contact (low-inference variables) and the observer ratings (high-inference) $rs = 0.81 - 0.90$ ($p < 0.00$).

Table 16:

T-tests and Level of Significance for Low-Inference Variables: Eye Contact (Frequency and Duration) and Vocal Segregates/Unintended Pauses for Treatment Conditions I and II (Groups I and II) at the Time of Testing B_1, B_2, B_3 (Pretest, Posttest I, Posttest II)

Variable	Time of testing							
	Pretest B_1		Posttest I B_2		Posttest II B_3		Posttest I Group I vs. Posttest II Group II B_2/B_3	
	t	p	t	p	t	p	t	p
Vocal Segregates, Unintended Pauses	0.70	0.49	1.49	0.15	2.84	0.01	1.17	0.25
Eye contact (Time)	0.21	0.83	2.17	0.04	-1.23	0.23	-1.60	0.12
Eye contact (Number)	0.27	0.79	3.56	0.00	1.00	0.99	-0.72	0.48

Two tailed test

As hypothesized (hypothesis H4) there is no significant ($p < 0.05$) difference between treatment conditions at the time of the pretest for all the variables, and a significant ($p < 0.05$) difference at the time of the posttest I for eye contact (duration and frequency)(hypothesis H5), but not for vocal segregates.

At posttest II there was a significant difference in the hypothesized direction (H 6) for the vocal segregates only, and not for other variables.

BEST COPY AVAILABLE

8.4. Effects of Nonverbal Behavior Training on Assertiveness, Persuasiveness, Speech Quality, Clarity, and Interest. (Hypothesis H1-H6)

The descriptive statistics for assertiveness (self-rating, observer rating), persuasiveness (self-rating, observer rating), speech quality, clarity, and interest (observer rating) for pretest, posttest I and II for both treatment conditions (groups I and II) are displayed in Table 17 and Figures 6 a - g.

Table 17:

Means and Standard Deviations for Treatment Conditions I and II (Groups I, II) for Assertiveness, Persuasiveness, Clarity, and Interest.

Variable	Treatment condition	Pretest M	Pretest SD	Posttest I M	Posttest I SD	Posttest II M	Posttest II SD
Assertiveness* (Self rating)	I	107.89	18.72	91.89	18.19	85.47	16.25
	II	102.06	18.13	99.13	19.83	87.56	23.76
Assertiveness* (Observer rating)	I	95.83	13.71	91.52	18.13	89.02	21.75
	II	103.31	16.06	105.33	15.33	91.90	20.27
Persuasiveness (Self rating)	I	65.61	9.42	69.89	8.46	71.88	11.66
	II	68.38	7.20	69.33	7.43	73.44	11.71
Persuasiveness (Observer rating)	I	64.54	5.48	71.13	4.42	69.28	7.18
	II	62.04	8.31	63.53	9.05	70.88	8.19
Speech Quality	I	30.11	4.24	32.81	4.74	33.75	3.64
	II	32.47	3.29	33.07	5.54	31.38	3.69
Clarity*	I	3.77	0.54	3.31	0.43	3.40	0.37
	II	3.89	0.66	3.69	0.76	3.21	0.53
Interest*	I	4.46	0.43	3.89	0.66	3.63	0.57
	II	4.51	0.52	4.31	0.66	3.60	0.63

* Higher means indicate lower assertiveness, clarity, and interest

BEST COPY AVAILABLE

Figures 6 a - g: (group I: —— ; group II: ----)

Figure 6 a:

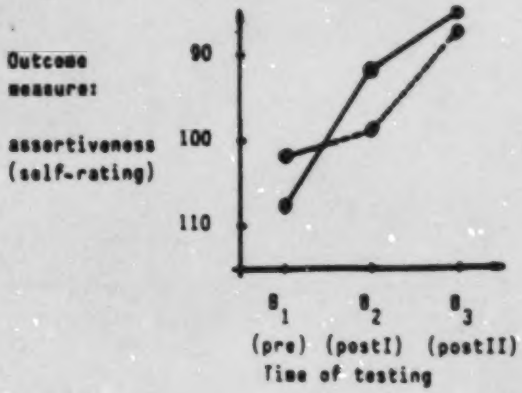


Figure 6 b:

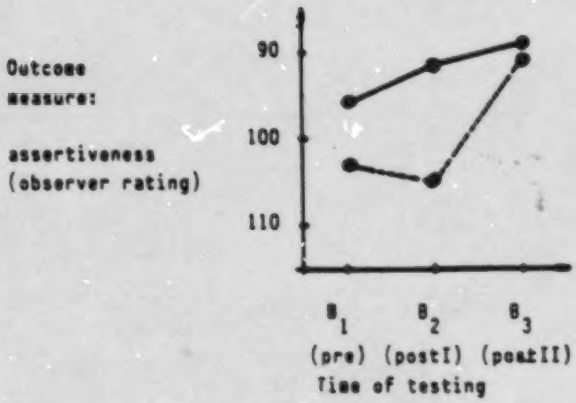


Figure 6 c:

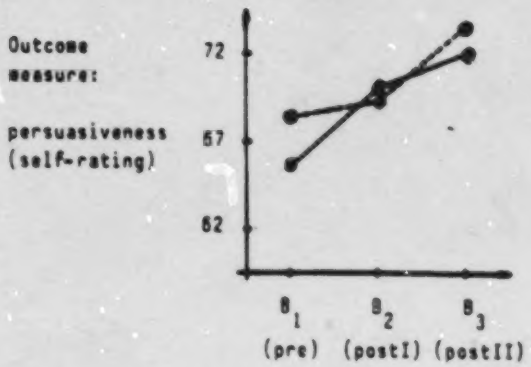
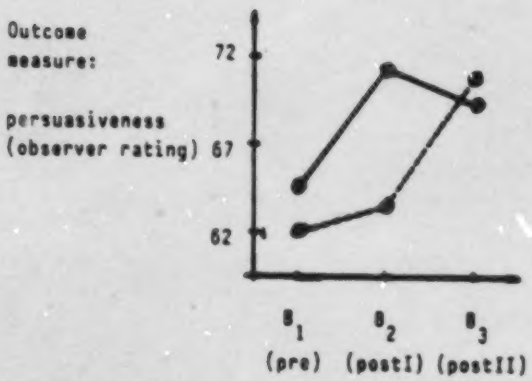


Figure 6 d:



BEST COPY AVAILABLE

BEST COPY

Figure 6 e:

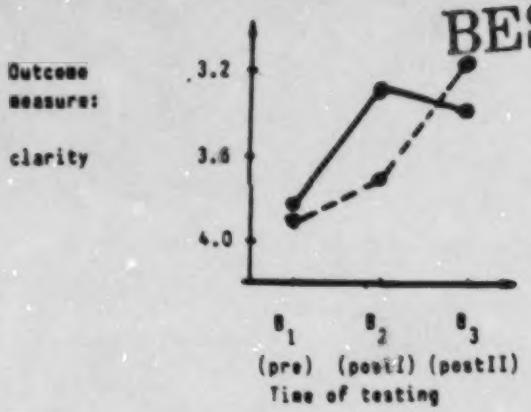


Figure 6 f:

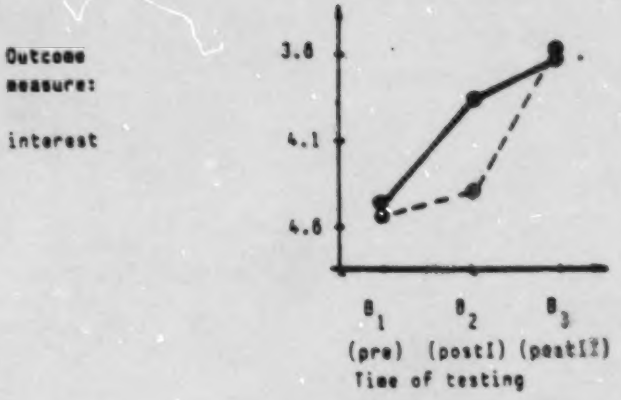
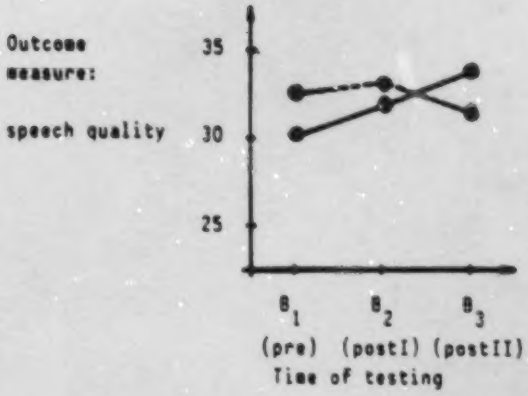


Figure 6 g:



As the data show, as a consequence of the nonverbal behavior training the assertiveness (self- and observer rating), persuasiveness (self- and observer rating), speech quality, clarity, and interest in most cases was considerably changed. In treatment condition I (group I) the participants increased the persuasiveness, clarity, and interest of their lecture from pretest to posttest I and again slightly from posttest I to posttest II in assertiveness, persuasiveness (self-rating),

speech quality, and interest, and declined slightly in persuasiveness (observer rating) and clarity.
Only slight gains were made in assertiveness (observer rating) and speech quality from pre- to posttest I.
For the participants in treatment condition II (group II) only slight gains from pretest to posttest I can be observed while substantial gains were made in all variables except speech quality.
At the time of posttest II, there were only small differences between treatment conditions I and II.

Table 18 displays the analysis of variance for the variables.

Table 18:

Analyses of Variance for Assertiveness, Persuasiveness, Speech Quality/Clarity, and Interest (F- and p-Values)

Variable	Factor	F	p
Assertiveness (Self rating)	A	0.98	0.33
	B	10.88	0.01
	A x B	0.88	0.42
Assertiveness (Observer rating)	A	2.30	0.14
	B	6.00	0.01
	A x B	1.57	0.22
Persuasiveness (Self rating)	A	0.00	0.95
	B	6.02	0.01
	A x B	0.50	0.61
Persuasiveness (Observer rating)	A	1.98	0.17
	B	15.53	0.00
	A x B	5.12	0.01
Speech Quality	A	0.04	0.85
	B	1.70	0.19
	A x B	2.44	0.10
Clarity (Observer rating)	A	1.52	0.23
	B	19.21	0.00
	A x B	1.15	0.32
Interest (Observer rating)	A	0.23	0.63
	B	0.39	0.68
	A x B	0.26	0.77

As hypothesized (hypothesis H3), there is a significant ($p<0.05$) main effect of times of testing (B) for assertiveness (observer and self-rating), persuasiveness (observer and self-rating), and clarity, but not for speech quality and interest. On the other hand, there is no significant ($p< 0.05$) main effect between the treatment conditions (A) for all of the seven variables (hypothesis H3), and no significant ($p< 0.05$) interaction between treatment conditions and time of testing. So hypotheses H1 and H2 must be rejected.

Table 19 displays the t- and p-values for the variables.

Table 19:

T-Values and Level of Significance for Treatment Conditions I and II (Groups I and II) at the Time of Testing B_1, B_2, B_3 (Pretest, Posttest I, Posttest II)

Variable	Time of testing							
	Pretest B_1		Posttest I B_2		Posttest II B_3		Posttest I Group I vs. Posttest II Group II	
	t	p	t	p	t	p	t	p
Assertiveness (Self-rating)	0.92	0.37	-1.09	0.28	-0.30	0.77	0.60	0.55
Assertiveness (Observer rating)	-1.48	0.15	-2.33	0.03	-0.39	0.70	-0.06	0.96
Persuasiveness (Self-rating)	-0.95	0.35	0.20	0.84	-0.38	0.71	-1.02	0.32
Persuasiveness (Observer rating)	1.04	0.30	2.97	0.01	-0.60	0.55	0.11	0.91
Speech Quality	-1.79	0.08	-0.15	0.86	1.83	0.08	0.97	0.34
Clarity (Observer rating)	-0.61	0.55	-1.79	0.08	-0.02	0.99	0.62	0.54
Interest (Observer rating)	-0.32	0.75	-1.78	0.09	0.17	0.87	-0.38	0.71

Two-tailed test

BEST COPY AVAILABLE

As hypothesized (hypothesis H4, H5) there is no significant difference between the treatment conditions at the time of the pretest and a significant ($p < 0.05$) difference between conditions at the time of posttest I for assertiveness (observer rating) and persuasiveness (observer rating). For clarity and interest, there is only a nearly significant difference ($p<0.08$; $p<0.09$).
There is no significant difference ($p<0.05$) between the treatment conditions at the time of posttest II (only one nearly significant difference ($p < 0.08$) for speech quality) (hypothesis H6).

Table 20 gives a synopsis of the results for all variables and the six hypotheses.

Table 20: Synopsis of the Results for All Variables and the Six Hypotheses.

	Nonverbal Expressiveness											Other Ratings						
		High Inference Variables							Low Inf. Variabl.									
Hypothesizes / Variables	Nonverbal Perceptiveness	Vocal Delivery	Facial Expressions	Eyes	Eye Contact	Gesturing	Body Movement	Overall Expressiveness	Eye Contact (Duration)	Eye Contact (Frequency)	Vocal Segregates	Assertiveness (Self-Rating)	Assertiveness (Obs.-Rating)	Persuasiveness (Self-Rating)	Persuasiveness (Obs.Rating)	Speech Quality (Verbal)	Clarity	Interest
H_1		+	0	0	+	+	+	+	+	+	0	0	0	0	+	0	0	0
H_2		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
H_3		+	+	+	+	+	+	+	+	+	+	+	+	+	+	0	+	0
H_4	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
H_5	+	+	0	0	+	+	0	+	+	+	0	0	+	0	+	0	0	0
H_6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

8.5. Results Concerning Relationships Between Variables

Tables 21, 22, and 23 represent the results for the relationships between various variables.

Table 21: Relationships Between Paper- and-Pencil Tests, Nonverbal Sensitivity (PONS), and the Level of Nonverbal Expressiveness (Pearson Correlation Coefficients)

Variable	Group	Nonverbal Sensitivity			Nonverbal Behavior		
		pretest r	posttest I r	posttest II r	pretest r	posttest I r	posttest II r
Nonverbal Sensitivity	I				0.03	0.27	---
	II				-0.42	-0.09	-0.32
	I + II				-0.13	0.26	---
Assertiveness[1] (Self-rating)	I	-0.07	-0.69**	---	-0.27	-0.07	0.02
	II	0.09	0.01	0.33	-0.43*	-0.45*	-0.60**
	I + II	0.02	-0.47**	0.33	-0.32*	-0.29*	-0.36*
Persuasiveness (Self-rating)	I	0.13	0.48*	---	0.14	-0.04	-0.25
	II	-0.36	-0.12	-0.37	0.42*	0.52	0.70**
	I + II	-0.07	0.29	-0.37	0.23	0.19	0.30*
Extraversion	I	0.04	0.39	---	0.01	-0.21	-0.09
	II	-0.56**	-0.20	-0.35	0.34	0.58**	0.74**
	I + II	-0.27	0.14	-0.35	0.17	0.21	0.41**
Directiveness	I	0.01	0.12	---	-0.12	-0.29	-0.23
	II	0.21	0.07	-0.20	-0.22	-0.31	0.27
	I + II	0.10	0.18	-0.20	-0.14	-0.17	-0.02

[1] — indicates positive relationship

* $p<0.05$

** $p<0.01$

Table 22: Relationships Between Self- and Observer Ratings: Assertiveness, Persuasiveness (Pearson Correlation Coefficients)

Variable	Group	Perceptiveness (Observer rating)			Assertiveness (Observer rating)		
		pretest	posttest I	posttest II	pretest	posttest I	posttest II
Persuasiveness (Self-rating)	I	0.36	0.54**	-0.05			
	II	0.61**	0.44*	0.71**			
	I + II	0.41**	0.40**	0.35*			
Assertiveness (Self-rating)	I				-0.31*	0.18	0.14
	II				0.55**	0.44*	0.76**
	I + II				0.08	0.34*	0.48**

* $p < 0.05$

** $p < 0.01$

Table 23: Relationships Between Assertiveness and Persuasiveness (Observer Ratings) and the Level of Expressiveness and Nonverbal Sensitivity (PONS) (Pearson Correlation Coefficients)

Variable	Group	Expressive Nonverbal Behavior			Nonverbal Sensitivity		
		pretest r	posttest I r	posttest II r	pretest r	posttest I r	posttest II r
Persuasiveness	I	0.13	0.02	0.42*	0.03	0.55**	---
	II	0.55*	0.56*	0.51*	-0.51	-0.23	-0.17
	I + II	0.34*	0.45*	0.48*	-0.22	0.28	-0.17
Assertiveness[1)]	I	-0.18	-0.13	-0.57**	0.33	-0.23	---
	II	-0.66*	0.57*	-0.65*	-0.02	-0.34	0.18
	I + II	-0.39*	-0.41*	-0.33*	0.19	-0.35	0.18

1) "-" indicates positive relationship

* $p < 0.05$

** $p < 0.01$

The results in tables 21 through 23 show no consistent treatment effects which could be interpreted meaningfully. The only relatively consistent, positive trend is the development of a stronger relationship due to training between self- and observer ratings of assertiveness and persuasiveness, which suggests that the training resulted in a stronger self-realism and self-awareness on the side of the participants.

8.6. Attitudes of the Participants to the Training

At the end of the training a questionnaire was distributed to assess the participants' attitudes towards the course and its elements (five-point scales).
A brief summary of the results is given in this section.(A copy of detailed questionnaire data can be obtained from the first author.)
The participants' opinions of the course were very positive. (Only one of them rated it medium, and another moderately negative). Except for these two participants, the training was rated as interesting and worthwhile. 23 trainees expressed the opinion that the course had helped to improve their skills of nonverbal communication (only 3 believed that they did not improve, 3 marked the middle of the scale). All of the course elements were also consistently positively evaluated. One exception is the PONS-test: about half of the participants believed that this test was not useful in increasing their nonverbal perceptiveness (practice in decoding emotions from nonverbal cues without feedback) or in assessing their nonverbal perceptiveness.

Interestingly, the participants of group II rated the training course more as positive (significant: $p<0.02$) and more worthwhile (nearly significant: $p<0.06$) than did group I. Moreover, more participants of group II (significant: $p<0.09$) expressed the opinion that the course had helped to improve their skill in nonverbal communication. But this same group expressed a stronger desire (significant: $p<0.02$) for more concrete and practical recommendations.

SUMMARY / CONCLUSIONS

9. Summary/Conclusions

The general importance of nonverbal aspects of communication, and in particular of nonverbal expressiveness in instructional settings, led to the development of training programs for nonverbal behaviors and nonverbal perceptiveness. Based on the results of evaluations of those programs, a training program for nonverbal perceptiveness and expressiveness was developed. The program contained the following training elements: theory presentation, discrimination training, practice in a scaled-down and/or simulated situation, and structured and open feedback. It was evaluated in a series of moderately controlled studies (Fitzner 1982, 1983; Klinzing et al. 1984).

The results of these studies are promising. They provide consistently positive evidence for the effectiveness of a training program containing the combination of the training elements mentioned above on nonverbal perceptivevess (decoding nonverbal cues) and the use of a higher level of nonverbal expressiveness on call in the areas of vocal delivery, eyes, eye contact, facial expressions, gesturing, and body movement, as well as for the effectiveness on some overall aspects of nonverbal expressiveness (activity, interest, attentiveness, assertiveness, and warmth). These results, however, were obtained in pre-experimental studies (of pre-test - posttest design) under only moderately controlled conditions, so that several confounded extraneous variables could have jeopardized the internal validity. So it appeared necessary to test the effectiveness of this training program again under highly controlled conditions in a true experimental design. For this purpose two variations of this training program were used. Training program I was about 33 hours long, training program II was identical to the first with the exception that videofeedback was reduced by approximately 50 % so that this training program was only about 27 to 28 hours long.

35 university students studying to become secondary school teachers in various subject matters volunteered for the study. They were (with few exceptions) randomly assigned to the two training conditions and were measured at three times: Pretest, posttest I, and posttest II (follow-up) in the following time series design:

$O_1 \quad X_1 \quad O_2 \quad O_3$

$O_1 \quad O_2 \quad X_2 \quad O_3$

where O_1 represents pretests used to control for initial levels of performance on the dependent variables; O_2 represents posttests I for determining the effects of the treatment versus no treatment, and O_3 represents posttests II (follow-up) for determining the effects of full treatment (X_1: 33 hours) on expressive nonverbal behavior versus the effects of the 5-6 hours shorter version (X_2) of the same training.

The following effects were hypothesized:

Hypothesis 1: There will be a significant interaction between treatment conditions and times of testing.

Hypothesis 2: There will be a significant main effect between treatment conditions.

Hypothesis 3: There will be a significant main effect of times of testing.

Hypothesis 4: There will be no significant difference between treatment conditions at the time of the pretest.

Hypothesis 5: There will be a significant difference between treatment conditions at the time of the posttest I.

Hypothesis 6: There will be a significant difference between treatment conditions at the time of posttest II (follow-up).

The data were analysed using repeated measures 2 x 3 ANOVA, in which the first factor was the two training conditions,

and the second factor was the time of testing. Thus, results corresponding to an "A" main effect, "B" main effect, and "A x B" interaction were obtained from the analysis- T-tests determined: the initial equivalence of the two treatment groups on all dependent measures at the pretests, the effectiveness of the full treatment versus no treatment at posttest I, and the effectiveness of the shortened treatment versus the full treatment at posttest II.

Results for Nonverbal Perceptiveness and Expressiveness

The 2 x 3 repeated measures analysis of variance indicated a significant A x B interaction for the majority of the measures: overall nonverbal expressiveness, vocal delivery, facial expression, gesturing, body movement, duration of eye contact, and frequency of eye contact. A positive trend was found for eyes and eye contact (assessed with h rating scales) and vocal segregates only. A significant B main effect could be detected for all measures, but no significant A main effect.

A priori analyses indicated there were no differences between the treatment groups on pretests, a significant difference (t-test) between treatment conditions at the time of the posttest I for nonverbal sensitivity, overall nonverbal expressiveness, vocal delivery, eye contact (high-inference measures), gesturing, duration, and frequency of eye contact (only a positive trend for facial eypressions, eyes, and body movement), and no significant difference between the treatment conditions at the time of the posttest II. Hypotheses H_1, H_3, H_4 and H_5 could be accepted, but H_2 and H_6 could not.

The results show that the training achieved its objectives, which were to increase both the level of nonverbal perceptiveness and the level of nonverbal expressiveness. Unexpectedly, the shortened version of the

program (5 hours shorter) turned out to be not only equally as effective as the full program, but slightly (but not significantly) more effective. This can hardly be explained by impediments induced by the video feedback in treatment condition I. It seems more likely to be due to the fact that the training in treatment condition I required too much work. The reduction of training in treatment condition II gave more room for a more relaxed atmosphere which then produced slightly better results.

The results were obtained in the areas of vocal delivery, gesturing, body movement, and eye contact; while only a positive trend was found in the areas of eyes, facial expressions, body movement, and vocal segregates/ intended pauses. Eyes and facial expressions are obviously more difficult to control (e.g. Ekman and Friesen 1978); more intensive training would have been more successful. For the variables: vocal segregates and unintended pauses there was no evidence found that showed that this variable was influenced by the training. Avoiding vocal segregates or unintended pauses was not directly part of the training, it was - incorrectly - expected to be a by-product.

Even though the test on nonverbal sensitivity (the PONS-test, Rosenthal et al. 1979) is highly reactive (provides practice in decoding nonverbal cues) the results show that nonverbal perceptiveness (measured by the PONS-test) can be improved by indirect training (a training which does not provide practice directly related to the skills required for the PONS-test).

In summary, the results of this study confirm the results of the earlier, only moderately controlled pre-experimental studies in this project (Fitzner 1983; Klinzing et al. 1983),

even though the experiment was shortened and conducted by different trainers.

Results for Other Measures

(assertiveness, persuasiveness, verbal speech quality, clarity, and interest)

It was hypothesized that an improvement in nonverbal expressiveness would also increase the assertiveness, persuasiveness, clarity, interest, and as a by-product: the verbal speech quality (correctness of syntax, word selection etc.) of the lectures. For the most part, the results confirm these assumptions.

The 2 x 3 repeated measures analysis of variance indicated: no significant A x B interaction except for persuasiveness; no A main effect for any measures; but a B main effect for the majority of the measures (except for verbal speech quality and interest).
A priori analyses indicated there were no differences between treatment groups on the pretest. Significant differences were obtained in posttest I for assertiveness and persuasiveness (observer ratings), with only a non-significant trend for the other variables. No significant differences at the time of posttest II (follow-up) could be found for any measures.

The results show that the use of a higher level of nonverbal expressiveness (due to training) made the trained observers perceive the participants to be significantly more persuasive and assertive and the lessons to be slightly more (weakly significant: $p<0.09$) clear and interesting.

The participants also rated themselves (though not always significantly) as more assertive and more persuasive after the training, presumably because they used more nonverbal expressiveness. Verbal speech quality (e.g. correctness of syntax, word selection) was not part of the training and no significant results were obtained.

Obviously, the changes obtained in the other measures were perceived by the participants and observers independently from the verbal speech quality.

Again, no significant A main effect and no significant difference at the time of posttest II were obtained between the treatment conditions. Unexpectedly, both treatment conditions resulted in comparable effects.

The participants of both groups acknowledged the significance of expressive nonverbal behavior for communication, and they accepted the training procedures as reasonable and motivating for increasing their level of expressive behavior. The participants in group II (shortened version) rated the training better in some aspects than group I (full version). These results confirm the assumption that the reason the shortened version was as equally effective or even slightly more effective than the full version, is to be attributed to more relaxed training (versus the full version which turned out to be overworking).

Unexpectedly, no consistent meaningful results were obtained concerning the relationships of expressive nonverbal behavior and nonverbal perceptiveness with variables like assertiveness, persuasiveness, directiveness, and extraversion. The only consistent trend was an increase in the relationship of self- and observer assertiveness and persuasiveness ratings, indicating a higher self-awareness and self-realism on the part of participants due to the training.

This course on expressive nonverbal behavior did not - and should not - aim at context-free training of non-verbal cues. Rather, it aimed at broadening the participants' repertory of nonverbal behavior in order to promote their expressivity and their flexibility in coping with a variety of different situations, to promote their ability to structure their verbal information for the audience, and to improve their ability to convey information and feelings effectively and inambiguously.

These studies do not assess in detail the appropriateness of a particular nonverbal behavior for a given content and context beyond the measures mentioned above. More attention is to be given to developing a model and assessment instruments, and to evaluating these very important aspects of human communication.

REFERENCES

10. References

BEST COPY

AHLBRAND W.P.: Ausdrucksverhalten des Lehrers und Einstellung der Schüler zum Unterricht. In: Zifreund, W. (ed.), Training des Lehrerverhaltens und Interaktionsanalyse. Weinheim/Basel; Beltz 1976. 111-131.

AIBAUER R.: Die Lehrerpersönlichkeit in der Vorstellung der Schüler. Regensburg, 1954.

ALLPORT F.H.: Social Psychology, Ch. 9. Boston: Houghton Mifflin, 1924, 226-228.

ARGYLE M.: Soziale Interaktion. Köln: Kiepenheuer & Witsch, 1972.

ARMENTO B.J.: Teacher Behaviors Related to Student Achievement on a Social Science Concept Test. Journal of Teacher Education, 1977, (28, 2), 46-52.

AUSUBEL D.P.: Educational Psychology: A Cognitive View. New York et al.: Holt, Rinehart, and Winston, Inc., 1968.

BARR A.S.: The Measurement and Prediction of Teaching Efficiency: A Summary of Investigations. Journal of Experimental Education, 1948 (16), 201-283 .

BASTINE R: Fragebogen zur direktiven Einstellung F-D-E. Handanweisung. Göttingen: Hogrefe, 1971.

BAUMGÄRTNER A.M.: Wie sich Schüler heute ihre Lehrer wünschen. München, 1969.

BECKER G.E.: Optimierung schulischer Gruppenprozesse durch situatives Lehrtraining. Heidelberg, 1973.

BECKER G.E. et al: Modellversuch: Entwicklung und Evaluation von Trainingseinheiten zum situativen Lehrtraining für Dozenten und Ausbilder in der beruflichen Erwachsenenbildung. Abschlußbericht. Forschungszentrum für Rehabilitation und Prävention, Heidelberg 1977.

BEISNER L.R.: Self-Analysis Procedures as Related to Teacher Perception of Verbal and Nonverbal Behaviors. Unpublished Dissertation. Ball State University. Muncie, Indiana 1977. (University Microfilms International, Ann Arbor, MI, No. 78-3912).

BERLINER D.C.: Microteaching and the Technical Skills Approach to Teacher Training. Technical Report No. 8. Stanford Center for Research and Development in Teaching, School of Education, Stanford University, Stanford, 1969.

BETTENCOURT E.M.: Effects of Training Teachers in Enthusiasm on Student Achievement and Attitudes. Unpublished Doctoral Dissertation, University of Oregon, 1979. (University Microfilm International 792 7226)

BETTENCOURT E.M. et al.: Effects of Teacher Enthusiasm Training on Student On-task Behavior and Achievement. American Educational Research Journal, 1983 (20, 3), 435-450.

BIRDSWHISTELL R.: Kinesics and Context. Essays on Body Motion Communication. Philadelphia: University of Pennsylvania Press, 1970.

BORG W.R.: Protocol Materials as Related to Teacher Performance and Pupil Achievement. The Journal of Educational Research, 1975 (69), 23-29.

BREED G.: Nonverbal Behavior and Teaching Effectiveness. Final Report. South Dakota Univ., Vermillion, 1971. (ERIC ED 059 182).

BRENGELMANN J.C. & BRENGELMANN C.: Deutsche Validierung von Fragebogen der Extraversion, neurotischen Tendenz und Rigidität. Zeitschrift für Experimentelle und Angewandte Psychologie. 1960 (7), 291-331.

BROPHY J.E. & EVERTSON C.M.: Process-Product Correlations in the Texas Teacher Effectiveness Study: Final Report. The University of Texas at Austin, 1974 (a).

BROPHY J.E. & EVERTSON C.M.: The Texas Teacher Effectiveness Project: Presentation of Non-linear Relationships and Summary Discussion. The University of Texas at Austin, 1974 (b).

BUGENTHAL D.E. et al.: Perception of Contradictory Meanings Conveyed by Verbal and Nonverbal Channels. Journal of Personality and Social Psychology, 1970 (16), 647-655.

CHAMBERS J.A.: College Teachers: Their Effect on Creativity of Students. Journal of Educational Psychology, 1973 (65, 3), 326-334.

COATS W.D. & SCHMIDCHENS U.: Audience Recall as a Function of Speaker Dynamism. Journal of Educational Psychology, 1966 (57), 189-191.

COLLINS M.L.: The Effects of Training for Enthusiasm on the Enthusiasm Displayed by Preservice Elementary Teachers. Paper presented at the Annual Meeting of the American Educational Research Association, Toronto, 1978.

CONNERS C.K. & EISENBERG L.: The Effect of Teacher Behavior on Verbal Intelligence in Operation Headstart Children. Baltimore: John Hopkins University School of Medicine, 1966. (ERIC ED 010 782).

COOPER J.M. & STROUD T.: The Stanford Summer Micro-Teaching Clinic, 1966. In Allen, D.W. (ed.), Microteaching: A Description. Stanford University, 1967.

DAVITZ J.R.: The Communication of Emotional Meaning. New York: McGraw Hill, 1964.

DAWSON P.J. et al.: Effect of Video Feedback on Teacher Behavior. The Journal of Educational Research, 1975 (68) 197-201.

DELANEY D.: A Study of the Effectiveness of Sensitivity Training on the Perception of Nonverbal Communications in Counselor Education. Unpublished Doctoral Dissertation, Arizona State University, 1966.

DITTMAN E.T. & LLEWELLYN:The Phonetic Clause as a Unit of Speech Decoding. Journal of Personality and Social Psychology, 1967, (6), 341-349.

DITTMAN A.T. & LLEWELLYN L.G.: Relationship Between Vocalisation and Head Nods as Listener Responses. Journal of Personality and Social Psychology, 1968 (9), 79-84.

DITTMAN A.T. & LLEWELLYN L.G.: Body Movement and Speech Rhythm in Social Conversation. Journal of Personality and Social Psychology, 1969 (11), 98-106.

DRISCOLL J.B.: The Effects of a Teacher's Eye Contact, Gestures, and Voice Intonation on Student Retention of Factual Material. Dissertation Abstracts International, 1979, 39 (9-B), 455 f.

DUNN J.D.: The Effects of Instruction in Interaction Analysis and Microteaching on the Verbal and Nonverbal Teaching Behaviors of Selected Home Economics Student Teachers. Unpublished Dissertation. The University of Alabama, 1978. (University Microfilms International, Ann Arbor, MI., No. 7819171).

EBEL R.L.: The Failure of Schools without Failure. Phi Delta Kappan, 1980 (61), 386-400.

EHRENSBERGER R.: An Experimental Study of the Relative Effectiveness of Certain Forms of Emphasis in Public Speaking. Speech Monographs, 1945 (12), 94-111.

EKMAN P. & HOFFMAN M.: Research Notes on Training in Nonverbal Behavior. Unpublished Manuscript, 1963 (reported by Rosenthal et al. 1979).

EKMAN P. & FRIESEN W.V.: Head and Body Cues in the Judgement of Emotions: A Reformulation. Perceptual and Motor Skills 1967 (24), 717-724

EKMAN P. & FRIESEN W.V.: Hand Movements. Journal of Communication, 1972 (22), 353-374.

EKMAN P. & FRIESEN W.: Detecting Deception from the Body or Face. Journal of Personality and Social Psychology, 1974 (29), 288-298.

EKMAN P. & FRIESEN W.V.: Unmasking the Face. London: Prentice Hall, 1975.

EKMAN P. & FRIESEN W.: The Facial Action Coding System. Palo Alto, 1978.

ELLETT L.E. & SMITH E.P.: Improving Performance of Classroom Teachers Through Videotaping and Self-Evaluation. AV Communication Review, 1975 (23, 3), 277-288.

EVERTSON C.M. et al.: Texas Junior High School Study: Final Report of Process-Outcome Relationships. Research and Development Center for Teacher Education. The University of Texas at Austin, 1978.

FETTER M.P.: The Utilization of Systematized Self-Analysis of Nonverbal Teaching Behavior in School Health Education Settings. Unpublished Dissertation. Syracuse University, 1981. (University Microfilms International, Ann Arbor, MI, No. 8123900).

FINK E.: Vom Wesen des Enthusiasmus. Freiburg: Chamier, 1946.

FIPPINGER F.: Untersuchungsergebnisse zum Lehrer-Image bei Hauptschülern. In: Irle, M. (ed.), Bericht über den 26. Kongreß der Deutschen Gesellschaft für Psychologie Tübingen 1968. Göttingen: Hogrefe, 1969, 552-560.

FITTKAU B.: Dimensionen des Lehrerverhaltens und ihre Bedeutung für die Auslösung von Angst und Sympathie bei Schülern. Zeitschrift für Entwicklungspsychologie und Pädagogische Psychologie, 1969 (1), 77-92.

FITZNER T.: Das Training von expressivem nichtverbalem Lehrverhalten. Unterrichtswissenschaft, 1982 (4), 329-349.

FITZNER T.: Expressives nichtverbales Lehrerverhalten. Unpublished Dissertation, University of Tuebingen, 1983.

FORTUNE, J.C.: The Generality of Presenting Behaviors in Teaching Pre-School Children. Memphis, Tenn.: Memphis State University, 1967 (ERIC ED 016285).

GAGE N.L.: Paradigms for Research on Teaching. In: Gage, N.L. (ed.), Handbook of Research on Teaching. Chicago: Rand McNally, 1963, 94-141.

GAGE N.L. & BERLINER D.C.: Educational Psychology. 2nd edition. Chicago: Rand McNally, 1979.

GARRETT B.A.: Pupil Perceptions of Selected Mississippi State University Student Teacher Participants in a Nonverbal Communication Training Program as Measured by the Pupil Observation Survey. Unpublished Dissertation. Mississippi State University 1979. (University Microfilm International Ann Arbor, MI, No. 7927086).

GAUGER P.W.: The Effect of Gesture and the Presence or Absence of the Speaker on the Listening Comprehension of Eleventh and Twelfth Grade High School Pupils. Unpublished Dissertation, University of Wisconsin, 1951 (reported by Rosenshine 1970).

GILLETT,M. & GALL M.: The Effect of Teacher Enthusiasm on the At-task Behavior of Students in Elementary Grades. Paper presented at the Annual Meeting of the American Educational Research Association, Los Angeles 1981.

GLASER R.: Explorations of the Teacher's Effectiveness in Lecturing (N.L. Gage et al.), Comments. In: Westbury I. & Bellack, A.A. (eds.),Research into Classroom Processes. Recent Developments and Next Steps. New York: Teachers College Press, 1971, 221-223.

GLASS G.V. et al.: Teacher "Indirectness" and Pupil Achievement: An Integration of Findings. Laboratory of Educational Research, University of Colorado, 1977.

GOFFMAN E.: Behavior in Public Places. London: Collier-MacMillan Ltd., 1963.

GOOD T.L. & GROUWS D.A.: Process-Product and Relationship in Fourth Grade Mathematics Classrooms. National Institute of Education, Washington, D.C., 1975 (ERIC ED 125 907).

GUILFORD J.P.: An Experiment in Learning to Read Facial Expression. Journal of Abnormal and Social Psychology, 1929 (24), 191-202.

HALL E.T.: The Hidden Dimension. New York: Doubleday, 1966.

HAMACHEK D.E.: Behavior Dynamics in Teaching, Learning, and Growth. Boston: Allyn & Bacon, 1975

HANSFORD B.C.: Microteaching, Feedback, Dogmatism, and Nonverbal Perceptiveness. The Journal of Psychology, 1977 (95), 231-235.

HERTWEG R.: Semantic Differential Ratings of Counselor Nonverbal Communication. Unpublished Doctoral Dissertation, Arizona State University, 1966.

HODGE R.L.: An Empirical Study of the Acquisition of Nonverbal Teaching Behaviors by Secondary Teacher Candidates in a Teaching Laboratory. Unpublished Doctoral Dissertation, The University of Texas at Austin, 1972 (University Microfilms 73-7571).

HOFFMAN M.: The Effects of Training on the Judgement of Nonverbal Behavior. An Experimental Study. Doctoral Dissertation, Harvard University, 1964.

HUBER F.: Allgemeine Unterrichtslehre. 10th edition. Bad Heilbrunn: Klinkhardt, 1969.

HUNTLEY S.V.: A Study of the Effects of Nonverbal Behavior Awareness Training on the Perception and Performance of Student Teachers in Elementary and Secondary Education. Unpublished Dissertation. The University of Toledo 1978. (University Microfilms International, Ann Arbor, No. 79-14845).

JECKER J.D. et al.: Improving Accuracy in Interpreting Nonverbal Cues of Comprehension. Psychology in the Schools, 1965 (2), 239-244.

JENNESS A.:The Effects of Coaching Subjects in the Recognition of Facial Expressions. Journal of General Psychology, 1932 (7), 163-178.

JERSILD A.: Modes of Emphasis in Public Speaking. Journal of Applied Psychology, 1928 (12), 611-620.

JOYCE B.R. & SHOWERS B.: Teacher Training Research: Working Hypotheses for Program Design and Directions for Further Studies. Paper presented at the Annual Meeting of the American Educational Research Association, Los Angeles, 1981.

KAUFMAN P.: The Effects of Nonverbal Behavior on Performance and Attitudes in a College Classroom. Dissertation Abstracts International, 1976, 37 (1-A), 235.

KEILHACKER M.: Der ideale Lehrer nach der Auffassung der Schüler. In: Strunz, K. (ed.), Pädagogische Psychologie für höhere Schulen. 4th edition. München, Basel, 1967.

KERN H.J.: Wichtige Variablen beim Lehrertraining. Psychologie in Erziehung und Unterricht, 1979 (26), 27-38.

KLEINMANN G.: General Science Teacher's Questions, Pupil and Teacher Behaviours, and Pupil Understanding of Science. Unpublished doctoral dissertation. University of Virginia, Charlottesville, 1964 (University Microfilms No. 65-3961).

KLINE L.W. & JOHANNSEN D.E.: Comparative Role of the Face and of the Face-Body-Hands as Aids in Identifying Emotions. Journal of Abnormal and Social Psychology, 1935 (29), 415-426.

KLINZING-EURICH G. & KLINZING H.G.: Lehrfertigkeiten und ihr Training. Weil der Stadt: Lexika, 1981.

KLINZING H.G.: Training kommunikativer Fertigkeiten zur Gesprächsführung und für Unterricht. Weil der Stadt: Lexika, 1982.

KLINZING H.G. et al.: Effects of a Training Program on Expressive Non-verbal Behavior. Paper presented at the Annual Meeting of the American Educational Research Association, Montreal, 1983. (ERIC ED 233 999)

KLINZING H.G. et al.: Re-test-Effekte des 'Profile of Nonverbal Sensitivity' (PONS-Test). Paper. Tübingen: Center for New Learning Methods, 1984 (b).

KOHNLE S.R.: Conflicting Verbal and Nonverbal Communication in Therapy. Doctoral Dissertation. University of Washington, 1971.

KUNKEL K., SCHIEFER H.-J. & STEIGER S.: Die Erweiterung der Variabilität nonverbalen expressiven Verhaltens und die Auswirkung auf wahrgenommene Selbstsicherheit und Oberzeugungsfähigkeit. Eine empirische Untersuchung. Diplomarbeit, University of Tuebingen, 1984.

LAND M.L.: Joint Effects of Teacher Structure and Teacher Enthusiasm on Student Achievement. Paper presented at the Annual Meeting of the Southwest Educational Research Association, San Antonio, TX, 1980 (ERIC ED 182 310).

LANGTHALER W. & WOTHKE W.: Effektivitätsuntersuchung eines Microteaching-Kurses an Verhaltensproben. Psychologie in Erziehung und Unterricht, 1979 (26), 276-283.

LANZETTA J.T. & KLECK R.E.: Encoding and Decoding of Nonverbal Affect in Humans. Journal of Personality and Social Psychology, 1970 (16), 12-19.

LÖWE H. & PREUSS G.: Die Lehrerpersönlichkeit im Urteil von Berufsschülern. Berufsbildung, 1966, 495-499, 532-544.

LONDON H. et al.: The Jury Method: How the Persuader Persuades. Public Opinion Quarterly, 1970 (34), 171-183.

MASLOW L. et al.: Persuasiveness of Confidence Expressed Via Language and Body Language. British Journal of Social Clinical Psychology, 1971 (10), 234-240.

MASTIN V.E.: Teacher Enthusiasm. Journal of Educational Research, 1963 (56), 385-386.

MATTIS S.: Minor Studies in Communication of Emotion. In Davitz, J. (ed.), The Communication of Emotional Meaning. New York: Mc Graw Hill, 1964.

McCOARD W.B.: Speech Factors as Related to Training Efficiency. Speech Monographs, 1944 (11), 53-64.

McCONNELL J.W.: Relationships Between Selected Teacher Behaviors and Attitudes/Achievement of Algebrar Classes. Paper presented at the Annual Meeting of the American Educational Research Association, New York, N.Y, 1977 (ERIC ED 141 118).

MEHRABIAN A.: Significance of Posture and Position in the Communication of Attitude and Status Relationships. Psychological Bulletin, 1969 (71), 359-372.

MILLER R.E. et al.: Nonverbal Communication in Man with a Cooperative Conditioning Task. Paper, Western Psychatrie Institute, 1975.

MITTENECKER E.: Die Variation von Lern- und Verstärkungsbedingungen bei der eindrucksmäßigen Beurteilung von Persönlichkeitsmerkmalen. In: Bericht über den 22. Kongress der Deutschen Gesellschaft für Psychologie. Göttingen: Hogrefe, 1960, 62-64.

MOLLER-WOLF H.M. & FITTKAU B.: Lehrverhalten von Hochschullehrern und seine Bedeutung für Einstellungen und Verhalten von Studenten. Zeitschrift für Entwicklungspsychologie und Pädagogische Psychologie, 1971 (3), 165-180.

NOHL H.: Charakter und Schicksal. Eine pädagogische Menschenkunde. 4th edition. Frankfurt a.M.: Schulte-Bulmke, 1949.

OTTESON J.P. & OTTESON C.R.: Effects of Teacher Gaze on Children's Story Recall. Perceptual and Motor Skills, 1980 (50), 35-42.

PANCRAZIO S.B. & JOHNSON W.D.: Comparison of Three Teacher Training Approaches in Nonverbal Behaviors which Encourage Classroom Interaction. Paper presented at the Annual Meeting of the American Educational Research Association, New York 1971 (ERIC ED 049 198).

PHILLIPS F.O.: Nonverbal Sensitivity and Nonverbal Behavior of Preservice Teachers in Student Teaching. Doctoral Dissertation, University of Georgia, Athens, 1975. (University Microfilms, Ann Arbor, Michigan, 76 6442).

PIERCE W. & HALINSKI R.: An Evaluation of Microteaching Training Techniques Using Pupil Outcomes as the Evaluation Criterion. Contemporary Education, 1974 (46, 1), 45-50.

PINNAS R.M.: The Effect of Microcounseling on Attentiveness and Sensitivity to Nonverbal Cues. Unpublished Doctoral Dissertation, The University of Miami, 1975.

PLATON Phaidros. Deutsch. In Sämtliche Werke,Bd. 4, Hamburg: Rowohlt, 1981, 8-60.

RAYMOND A.: The Acquisition of Nonverbal Behaviors by Preservice Science Teachers and their Application During Student Teaching. Journal of Research in Science Teaching, 1973 (10, 1), 13-24.

REICH L.H.: Non-verbal Communication of Emotions: A Study of the Relationship Between Training, Expression, and Recognition of Emotion. Doctoral Dissertation, Arizona State University, 1970 (University Microfilms, Ann Arbor, Michigan, 70-24, 409).

ROMINE S.: Student and Faculty Perceptions of an Effective University Instructional Climate. The Journal of Educational Research, 1974 (68), 139-143.

ROSENSHINE B.: Behavioral Predictors of Effectiveness in Explaining Social Studies Material (Doctoral dissertation, Stanford University, 1968) University Microfilms, Inc., Ann Arbor, Michigan, 1968.

ROSENSHINE B.: Enthusiastic Teaching: A Research Review. School Review, 1970 (78), 499-514.

ROSENSHINE B. & FURST N.F.: The Use of Direct Observation to Study Teaching. In: Travers, M.W. (ed.), Second Handbook of Research on Teaching. Chicago: Rand McNally, 1973, 122-183.

ROSENTHAL R. et al.: The PONS-Test Manual: Profile of Nonverbal Sensitivity. New York, N.Y.: Irvington, 1979a.

ROSENTHAL R. et al.: Sensitivity to Nonverbal Communication: The PONS Test. Baltimore and London: The John Hopkins University Press, 1979

RYANS D.G.: Characteristics of Teachers. Washington: American Council of Education, 1960.

SCHEFLEN A.E.: Körpersprache und soziale Ordnung. Stuttgart: Klett, 1976.

SCHERER K.R. & GILES H. (eds.): Social Markers in Speech. Cambridge: Cambridge University Press, 1979.

SEIFERT K.H.: Schülererwartungen und Lehrerverhalten und ihre Bedeutung für die schulisch-berufliche Sozialisation. Die Deutsche Berufs- und Fachschule, 1974 (70), 3-27.

SERBER M.: Teaching the Nonverbal Components of Assertive Training. Journal of Behavior Therapy and Empirical Psychiatry, 1972 (3), 179-183.

SHUM W.C.: The Effects of Training Student Teachers in Self-Analysis of Nonverbal Response Patterns. Paper, State University of New York at Oswego, undated.

SMITH H.A.: Nonverbal Communication in Teaching. Review of Educational Research, 1979 (49, 4), 631-672.

SOLOMON D. et al. Teacher Behavior and Student Learning. Journal of Educational Psychology, 1964 (55, 1), 23-30.

SOLOMON D.: Teacher Behavior Dimensions: Course Characteristics and Student Evaluation of Teachers. American Educational Research Journal, 1966 (3), 35-47.

STÖCKER K.: Neuzeitliche Unterrichtsgestaltung. 14th edition. München: Ehrenwirth, 1970.

STROTHER D.B.: The Effects of Instruction in Nonverbal Communication on Elementary School Teacher Competency and Student Achievement: Final Report. Pullman, Washington: Washington State University, 1971 (ERIC ED 056 005).

TAUSCH R. & TAUSCH A.: Erziehungspsychologie. 8th edition. Göttingen, Hogrefe 1979.

THAYER S.: & SCHIFF W.: Stimulus Factors in Observer Judgement of Social Interaction. American Journal of Psychology, 1969 (82), 73-85

ULLRICH R. & ULLRICH R.: Das Assertiveness-Training-Programm. ATP. Einübung von Selbstvertrauen und sozialer Kompetenz. Teil II, München: Pfeiffer, 1976.

ULLRICH R. & ULLRICH R.: Der Un(sicherheits)-Fragebogen und das Emotionalitätsinventar EMI als Befindlichkeitsmaß. Materialien zu: ULLRICH R. & ULLRICH R.: Das Assertiveness-Trainings-Programm ATP, München: Pfeiffer, 1976.

ULLRICH R. & ULLRICH R.: Das Emotionalitätsinventar Testmanual EMI-B. Anleitung für den Therapeuten. Teil IV. München: Pfeiffer, 1977.

UNRUH W.R.: The Modality and Validity of Cues to Lecture Effectiveness. In Gage, N.L. et al., Explorations of the Teacher's Effectiveness in Explaining. Technical Report No. 4. Stanford, CA: Stanford Center for Research and Development in Teaching, School of Education, Stanford University, 1968.

WALLEN N.E.: Relationships Between Teacher Characteristics and Student Behavior. Part III. University of Utah, Salt Lake City, 1966. (ERIC ED 010 390).

WALTON W.E.: Emphatic Responses in Children. Psychological Monographs 1936 (48, 1), 40-67.

WARE J.E. & WILLIAMS R.G.: The Dr. Fox Effect: A Study of Lecturer Effectiveness and Ratings of Instruction. Journal of Medical Education, 1975 (50), 149-156.

WITHALL J. & LEWIS W.W.: Social Interaction in the Classroom. In: Gage, N.L. (ed.), Handbook of Research on Teaching. Chicago: Rand McNally, 1963, 683-714.

WILLIAMS, R.G. & WARE J.E.: Validity of Student Ratings of Instruction Under Different Incentive Conditions: A Further Study of the Dr. Fox Effect. Journal of Educational Psychology, 1976 (68, 1), 48-56.

WILLIAMS R.G. & WARE J.E.: An Extended Visit with Dr. Fox: Validity of Student Satisfaction with Instruction Ratings after Repeated Exposures To A Lecturer. American Educational Research Journal, 1977 (14, 4), 449-457.

WOODALL W.G. & BURGOON J.K.: The Effects of Nonverbal Sychrony on Message Comprehension and Persuasiveness. Journal of Nonverbal Behavior, 1981(5.4), 207-223.

WOOLBERT C.H.: Effects of Various Modes of Public Reading. Journal of Applied Psychology, 1920 (4), 162-185.

WOOLFOLK A.E. & BROOKS D.M.: Nonverbal Communication in Teaching. In Gordon, E.W. (ed.): Review of Research in Education, 10. Washington: American Educational Research Association, 1983, 103-149.

WYCKOFF W.L.: The Effect of Stimulus Variation on Learning from Lecture. The Journal of Experimental Education, 1973 (41, 3), 85-90.

YOUNG E.M.: Effect of Teacher Enthusiasm on Vocational Business Education Student Achievement. Unpublished Doctoral Dissertation, University of Missouri, Columbia, 1973 (University Microfilms 74-18676).

Appendix

11. APPENDIX

Training Intervention in Expressive Nonverbal Behaviors

Activity	Goal/Objectives	lime (Min.)	Time-table
Group instruction/Theory presentation: General information on the importance of nonverbal behaviors in communication and teaching, on the objectives of the course, and related specific behaviors, course organization and time table (discussion)	Providing a knowledge base for the decision as to whether or not to participate in the course	50	Monday 9.30 - 10.00
Random assignment of the participants to treatment conditions I and II (groups I and II)		20	10.00 - 10.20
Break		(10)	10.20 - 10.30
PRETEST (for both groups) (Profile of nonverbal sensitivity, performance test) Discussion			- ≈ 5.00

Activity	Goals/Objectives	Time	Time table
Voice delivery Exercises for relaxation and breathing / time table for the day (whole group)	Relaxation, breathing	10/10	Tuesday 9.10 - 9.30
Group instruction / Theory presentation Information about the functions and effects of voice delivery(variations in tempo, pauses, intensity (loudness), pitch, and disfluencies, on enhancing the understanding of verbal information, expressing interpersonal attitudes, expectations, and emotions; vocal delivery, personality characteristics, relationships (whole group)	Increasing comprehension of functions and effects of voice modulation	10	9.30 - 9.40
Discrimination training Decoding of emotions from electronically generated voice modulations (discussion) (whole group)	Increasing the ability of decoding emotions from voice delivery	25/15	9.40 - 10.20
Break		10	10.20 - 10.30
Self-analysis of own performance Analysis of own performance from the audio-tapes of the pretest-lectures (stutters, incomplete sentences, vocal segregates, filled and unfilled pauses, false starts, pronounciation, variations in tempo, loudness, pitch) in a language laboratory (individually)	Identification of one's own deficiencies in voice delivery; stating objectives for further practice, individually	60	10.30 - 11.30

Activity	Goals/Objectives	Time	Time table
Voice delivery (cont.) Preliminary exercises Reading, narration of a given fable (with help of a model) on audio tape in a language laboratory (individually)	Increase of variation of pitch for illustrating and structuring verbal information	60	Tuesday (cont.) 11.30 - 12.30
Lunch break		(90)	12.30 - 2.00
Becoming familiar with the names of each other Group instruction Introduction into the rating scales for voice delivery	Providing a feedback source	15	2.10 - 2.25
Preliminary exercise Narration of the fable (same as in the preliminary exercises) in small groups with group feedback based on the rating of the participants	Increase the level of expressiveness in vocal delivery (espec. pitch)	35	2.25 - 3.00
Discussion (whole group)		30	3.00 - 3.30
Preliminary exercises: practice in reading news (individually in a language laboratory)	Increasing of variation of tempo and pauses for structuring verbal information	60	3.30 - 4.30
Discussion of the day, feedback of participants to the instructors, information about the PONS-results		45	4.30 - 5.15

Activity	Goals/Objectives	Time	Timetable
(Voice delivery cont.) Exercises for relaxation and breathing, time table for the day (whole group)		10/10	Wednesday 9.00 - 9.20
Group instruction (theory presentation) Loudness as an emphasis device (whole group)	Increase the comprehension of variations in loudness as an emphasis device	10	9.20 - 9.30
Preliminary exercises Reading, giving a (fabulous) speech to an imaginated audience feedback by another student (language laboratory with a peer)(individually and groups of two)	Increase of structuring verbal information by using tempo, pauses, pitch and loudness	45	11.30 - 12.15
Lunch breack		(90)	12.15 - 1.45
(Preliminary exercises, cont.) Describing a route/walk in town sitting back to back with a partner Describing a comic sitting back to back with a partner; the partner summarizes the description (groups of two)	" "	55	1.45 - 2.40
Break		10	2.40 - 2.50

Activity	Goals/Objectives	Time	Time-table
(Voice delivery cont.) Practice/feedback Giving a speech to a small group of peers on a self-chosen topic (video- and peer feedback based on rating scales) (small groups) (video feedback for group I only)	Increasing expressiveness in voice delivery (pitch, loudness, pauses, tempo) in a more realistic setting	120	Wednesday, cont. 2.50 - 4.50
Discrimination training (general) Introduction to the rating scales for expressive nonverbal behaviors (voice delivery, eyes, eye contact, facial expressions, gesture, and body movement) based on videotape (20 min.), and role playing based on written materials with still pictures (small groups)	Increasing the awareness of high and low expressive nonverbal behaviors	60	4.50 - 5.50
Daily discussion feedback of the participants to the instructors (whole group)		20	5.50 - 6.10

Activity	Goals/Objectives	Time	Time table
Exercises for relaxation and breathing (whole group)			Thursday 9.00 - 9.10
Discrimination training (general) (cont.) (small groups)		40	9.10 - 9.50
Facial expressions, eyes, eye contact			
Group instruction (theory presentation) Facial expressions and eye contact for expressing emotions and interpersonal attitudes, face and personality, eye contact accompanying speech (whole group)	Increasing the comprehension of the effects and functions of facial expressions and eye contact to express emotions and to use them for punctuation	10	9.50 - 10.00
Discrimination training: Decoding emotions from schematic faces (from Thayer and Schiff, 1969) (whole group) Expressing emotions in front of a mirror (individually) mirroring facial expressions of a partner (groups of two) Videotape: Human Facial Expressions	Increase awareness of facial expressions	70	10.00 - 11.10

Activity	Goals/Objectives	Time	Timetable
(Facial expressions, eyes, eye contact, cont.) Self-analysis of practice session voice delivery related to facial expression, eyes, and eye contact (Group I only)	Identification of own deficiencies in facial expressions, eyes, and eye contact; stating objectives for further practice (Group I only)	40	Thursday, cont. 11.10 - 11.50
Break		10	11.50 - 12.00
Preliminary exercises: Telling round-table stories (with video feedback)	Increasing the level of expressiveness with facial expressions (as a commentary to the verbal information) and frequency of eye contact	35	12.00 - 12.35
Lunch break		(85)	12.35 - 2.00
Practice and feedback Giving a lecture on a self-chosen topic to a small group of peers (5 min.), with video feedback and peer feedback based on rating scales (video feedback for group I only)	Increasing the level of expressiveness with facial expressions and of the frequency of eye contact in a more realistic situation	90	2.00 - 3.30
Break		20	3.30 - 3.50

Activities	Goals/Objectives	Time	Time table
Posture, body movement Preliminary exercises: Imitating postures and body movement and movements of animals	motivation, relaxation	5	Thursday (cont.) 3.50 - 3.55
Group instruction (theory presentation) posture, body movement	comprehension of the functions and effects of posture and body movement	10	3.55 - 4.05
Discrimination training Interpretation of stick figure diagrams (from Sarbin and Hardyk 1953)	Increasing the awareness of different postures	20	4.05 - 4.25
Self-analysis of the practice session (facial expressions) related to posture and body movement (for group I only)	Identification of own deficiencies; stating objectives for further practice (for group I only)	45	4.25 - 5.10
Daily discussion feedback of the participants to instructors		10	5.10 - 5.20

Activities	Goals/Objectives	Time	Time table
(Posture, body movement, cont.) Exercises for relaxation and breathing, time table for the day		15/5	Friday 9.00 - 9.20
Preliminary exercises Exhibition of typical personality characteristics by posture and body movement (small groups) (with video feedback)	Increase of expressiveness in posture and body movement: tension - relaxation, emotions, punctuaction	15	9.20 - 9.40
Practice, feedback Role play: Expression of own opinions, in an official meeting, with video- and group feedback (group video feedback for group I only)	Increase of expressiveness in posture and body movement: tension - relaxation, emotions, punctuation	60	9.40 - 11.00
G e s t u r e Group instruction: gestures and their functions and effects; rhythmics of speech, emphasis, illustration/emblems for enhancing understanding and emotions	Comprehension of function and effects of gestures for enhancing understanding and emotions	20	11.00 - 11.20
Discrimination training, modelling Viewing and classifying of gestures from short scenes and a story displayed by an actor. Imitation of gestures from tape.	Increasing the awareness of different types of gestures	40	11.20 - 12.00
Self-analysis of own performance from the practice session (posture, body movement) in relation to different types of gestures (for group I only)	Identification of own deficiencies, stating objectives for further practice (for group I only)	30	12.00 - 12.30

Activities	Goals/Objectives	Time	Time table
(Gesture, cont.) Lunch break		90	(Friday, cont.) 12.30 - 2.00
<u>Preliminary exercises:</u> Demonstration and illustration of concepts, typical activities of professions etc. (videofeedback) Delivering sentences using gestures (punctuation, emphasis, illustration) (videofeedback)	Increase of expressive use of gestures for enhancing understanding of verbal informations	60	2.00 - 3.00
Break		15	3.00 - 3.15
<u>Practice / Feedback</u> Giving a short (5 min.) presentation to a small group of peers on a self-chosen topic (video-feedback, peer feedback based on rating scale) (videofeedback for group 1 only)	Increasing the expressive use of gestures in a more realistic situation	45	3.15 - 4.00
<u>Daily discussion</u> Feedback of the participants to the instructors		30	4.00 - 4.30

Activity	Time	Time table	
Exercises for relaxation and breathing	5	Monday (Group I) 9.00 - 9.05	Monday (Group II) POSTTEST I 9.00 - 13.15
Group instruction Summary of the course Integration of nonverbal modalities	55	9.05 - 10.00	
POSTTEST I (Group I)		10.00 - 15.00 End of training for group I	
Group II (Treatment condition II) Same program as for group I (treatment condition I) except that there was no videotape feedback in the preliminary exercises and expecially not in the practice sessions; therefore, at three instances there was no self-analysis. So treatment condition II was about 6 hours shorter			Monday (cont.) 13.15 Tuesday, Wednesday, Thursday, Friday - 10.00
POSTTEST II (Group II)			Friday 10.00 - 1.00
POSTTEST II (Group I)		Friday 1.00 - 4.00	